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11 July 2014

Aimee Reynolds
Project Manager
Montana Department of Environmental Quality
Remediation Division
1100 North Last Chance Gulch
Helena, MT 59620-0901

Re: *Joint Livingston Restoration Group (LRG) and BNSF Railway Company (BNSF) Revised Cinder Pile Remedial Design Study Work Plan Submittal*

Dear Aimee,

BNSF Railway Company (BNSF) joins the Livingston Restoration Group (LRG) in seeking the Montana Department of Environmental Quality's (DEQ's) approval to implement work specified in the Revised Draft Cinder Pile Remedial Design Study Work Plan (Revised Draft Work Plan) prepared by Water & Environmental Technologies, Inc. (WET) and approved by the LRG. The Revised Draft Work Plan addresses DEQ's comments provided in a letter to BNSF dated 27 June 2014 including redline strikeout comments on the Work Plan main text, Figures 3 and 4, and Appendix D (Analysis of Environmental Requirements, Criteria, and Limitations).

Upon receipt of DEQ's acceptance of the above-mentioned Revised Work Plan, BNSF and its contractors will proceed to provide assistance and support to the LRG's contractor with coordination and implementation of the specified scope of work. Please feel free to contact me with any questions.

Sincerely,

Allen Stegman

ENCLOSURE

cc: David Erickson, WET
Dave Smith, BNSF
Levi Fernandes, Kennedy/Jenks Consultants
Dr. Bernie Kueper
Katherine Haque-Hausrath, DEQ Legal
Courtney Lawellin
Lezlie Nelson, LRG

REVISED CINDER PILE REMEDIAL DESIGN STUDY WORK PLAN

*BNSF Livingston Shop Complex Facility,
Livingston, Montana*

Prepared for:

Livingston Restoration Group

Livingston, MT

Prepared by:



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July 2014

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List of Acronyms

<u>Abbreviation</u>	<u>Description</u>
ACM	asbestos-containing material
API	American Petroleum Institute
BGS	below ground surface
BNRR	Burlington Northern Railroad
BNSF	BNSF Railway Company
DEQ	Montana Department of Environmental Quality
DPT	direct-push technology
EPA	United States Environmental Protection Agency
ERCL	Environmental Requirements, Criteria, and Limitations
HASP	Health and Safety Plan
IDW	investigation-derived waste
LRG	Livingston Restoration Group
ug/m ³	micrograms per cubic meter
mL	milliliter
MRL	Montana Rail Link
NAPL	non-aqueous phase liquid
NAVD	North American Vertical Datum
NPRR	Northern Pacific Railroad
PCE	tetrachloroethene
PID	photoionization detector
PPE	personal protective equipment
ppbv	parts per billion by volume
ppmv	parts per million by volume
PRT	Post Run Tubing
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
QC	Quality Control
RA	remedial action
RD	remedial design

RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPD	Relative Percent Difference
SAP	Sampling and Analytical Plan
SOG	Standard Operating Guideline
SOW	Statement of Work
SVE	soil vapor extraction
TCE	trichloroethene
VOC	volatile organic compound
WET	Water and Environmental Technologies, PC
WWTP	wastewater treatment plant

1.0 INTRODUCTION

Water and Environmental Technologies, PC (WET) has prepared this Work Plan on behalf of the Livingston Restoration Group (LRG) for a Remedial Design (RD) Study to be conducted in and around the capped Cinder Pile located on the Burlington Northern Livingston Shop Complex Facility (Facility) in Livingston, Montana. The Facility location is shown on Figure 1.

1.1 FACILITY HISTORY

The Facility consists of an active rail yard and shop complex in northeast Livingston. The rail yard was owned and operated by Northern Pacific Railroad (NPRR) from 1883 until 1970 and by Burlington Northern Railroad (BNRR) from 1970 to 1987. In 1987, Montana Rail Link (MRL) purchased the buildings at the Facility from BNRR and began operating at the Facility. In 1996, BNRR merged with Atchison, Topeka & Santa Fe Railway Company and became BNSF Railway Company (BNSF). Presently, MRL repairs and maintains locomotives and rail cars at the Facility.

The Cinder Pile consists primarily of bottom ash that was removed from steam locomotives and deposited at the Facility beginning in the mid-1940s. It encompasses approximately 6.6 acres on an irregular footprint of approximately 1000 feet by 350 feet as shown on Figure 1. According to a 2011 Remedial Action (RA) Report prepared by Envirocon, Inc. of Missoula, Montana, the quantity of material in the Cinder Pile is estimated to be between 130,000 cubic yards and 202,000 cubic yards (Envirocon, 2011).

BNSF conducted degreasing operations in the past using tetrachloroethene (PCE) in the Electric Shop, and sludge containing PCE was placed in unlined disposal pits including the American Petroleum Institute (API) separator pond, overflow pond, wastewater treatment plant (WWTP) sump and pits located at the Cinder Pile. Figure 2 is a reproduction of a 1992 figure prepared by Envirocon showing the locations of various sludges disposed in the Cinder Pile. Sludge was also present at the in-line grit chamber, various manways, surge tank, and the WWTP grit chambers (DEQ, 2001). Oily sludge was removed from these areas and disposed of off the Facility between 1989 and 1993, and PCE-containing material left in place was treated in-situ using pulsed soil vapor extraction (SVE) between 1992 and 1994.

In 1990, the Montana Department of Health and Environmental Sciences (predecessors to the Montana Department of Environmental Quality (DEQ)) and BNSF entered into a Partial Consent Decree for a remedial investigation and feasibility study (RI/FS) of the Facility. These actions ultimately led to the issuance of a 2001 *Record of Decision* (ROD) describing the selected remedy for the Facility and a 2005 Statement of Work (SOW) outlining remedial design, remedial action, supplemental investigation institutional controls, monitoring and maintenance, and other activities required for implementation of portions of the selected remedy.

A component of the selected remedy in the ROD required recontouring, capping, revegetating, fencing, and restrictive covenants at the Cinder Pile to limit exposure to asbestos-containing material (ACM) comingled with the cinders. Remedial activities were conducted by Envirocon in 2005 and are summarized in the 2011 RA Report (Envirocon, 2011). Figure 3 shows the capped and re-vegetated Cinder Pile as it currently exists.

According to a 2008 Comprehensive Interim Action and Confirmation Sampling Summary Report prepared by Kennedy/Jenks Consultants, an estimated 100 cubic yards of potentially volatile organic compound (VOC) - containing soil may remain in the Cinder Pile (Kennedy/Jenks, 2008a). Soil gas and groundwater sampling results suggest that this source material and other unidentified potential source materials within the Cinder Pile may act as a source of dissolved PCE in groundwater.

As required by DEQ, additional investigation activities around the shop complex and Cinder Pile were proposed by BNSF in Addendum No. 2 to DEQ Version of Task L Supplemental Investigation Work Plan for Bedrock Aquifer(s) (Kennedy/Jenks, 2013), which was submitted on May 23, 2013 and approved by DEQ. The proposed activities included collecting passive soil gas samples from approximately four feet below ground surface (BGS) with Gore™ modules set on 100-foot centers to assess the presence of VOCs in the shallow soil gas, as well as the installation of 8 new alluvial aquifer groundwater monitoring wells near the shop complex. Field activities were conducted in the summer of 2013, and the soil gas sample locations and analytical results for PCE are shown in Appendix A.

1.2 OBJECTIVES

The purpose of this RD study is to gather data that will be used to select and design remedial actions to address potential PCE source materials in the Cinder Pile by achieving the following objectives:

- Confirm the presence of potential PCE source materials within the Cinder Pile that were identified during BNSF shallow soil gas sampling;
- Delineate the nature and extent of PCE source materials, if any;
- Evaluate the contributions of PCE source materials to the dissolved PCE in groundwater;

2.0 RD STUDY ACTIVITIES

The proposed scope of work for this RD Study includes the following tasks:

- Review BNSF's report summarizing the shallow soil gas data to identify areas of elevated VOC concentrations or "hot spots" at the Facility;
- Conduct a focused soil gas investigation in "hot spot" areas using a 50-foot "step-out" approach;
- Compile and interpret soil gas concentration data from shallow grid samples and focused "step-out" samples to delineate PCE source materials, if any;
- Install alluvial aquifer monitoring wells in and down-gradient from source areas identified during the soil gas investigation, if any;
- Collect depth-integrated soil samples from well borings to further delineate source materials, if present;
- Collect groundwater samples from wells to evaluate the contributions of PCE source materials present within the Cinder Pile, if any, to the dissolved PCE in groundwater; and
- Prepare a RD Study Report that summarizes the study and recommend remedial actions to address the PCE sources, if warranted.

2.1 SOIL GAS INVESTIGATION

Using a Geoprobe® direct-push technology (DPT) drill rig, soil borings will be advanced until refusal in areas exhibiting elevated VOC concentrations, or “hot spots,” that were identified during BNSF’s initial grid sampling effort. Boring locations are identified below, and soil gas sample collection procedures are described in Section 0.

This focused sample effort will follow a 50-foot “step out” approach: a boring location from BNSF’s grid sample effort will be considered the central “hot spot” location, and a soil boring will be advanced in that location. In addition, four “step out” borings will be advanced 50 feet from the central location (one boring to the north, one to the south, one to the east, and one to the west). Figure 3 shows the BNSF grid sample locations within the Cinder Pile, the selected central boring locations at “hot spots”, and the associated step-out locations surrounding the selected central boring locations. Appendix A shows BNSF’s shallow soil gas sample results for PCE. Soil gas samples will be collected from each boring and analyzed for VOCs using an onsite mobile laboratory as discussed in Section 0.

Soil boings and associated soil gas sampling proposed at central boring locations (BNSF locations CP-2A through CP-8A shown in Appendix A) and associated step-out locations may be unsuccessful with DPT due to the cobbled character of the native alluvial material. If soil gas samples cannot be collected to sufficiently characterize soil gas concentrations along the northern perimeter of the Cinder Pile, additional soil borings may be advanced with the rotonsonic rig to obtain additional soil and groundwater data as described in Section 2.2.1.

2.1.1 Soil Gas Sample Collection and Analysis

Soil gas samples will be collected at four-foot depth intervals to the terminal depth of each boring. The soil borings will be advanced using a Geoprobe® 5400 and/or Geoprobe® 6610 direct-push rig equipped with Geoprobe® Post Run Tubing (PRT) soil gas sampling systems. The PRT system allows the user to collect soil gas samples from a boring using a down-hole sample tubing adapter and gasketed tool connections. A diagram of the PRT system is provided on Figure 4.

The initial soil gas sample from each boring will be collected at approximately four feet BGS, which is the depth at which BNSF Gore™ modules were installed, in order to correlate data collected from this sample effort with BNSF Gore™ module data. Subsequent samples will be collected from each boring at approximately four-foot intervals until refusal. It is anticipated that the low-permeability cap covering the Cinder Pile will allow the collection of soil gas samples from depths of four feet without infiltration of ambient air from the surface. Tracer gas will be used to detect surface breakthrough during sample collection, and a surface seal consisting of hydrated bentonite or similar material will be used around the tool string, when appropriate, as discussed in Section 2.1.2.

To advance soil borings for soil gas sampling, the following procedures will be followed:

1. Prior to beginning each boring, a length of 1/4-inch diameter Teflon tubing will be pre-cut to a length equal to the anticipated total depth of the soil boring, plus the additional length required to attach the tubing to the sample collection system (sample train).

2. The sample tubing will be inserted through a hollow drill rod and attached to a stainless steel tubing adapter.
3. The tubing adapter will be threaded into a PRT expendable point holder, and the point holder will be threaded into the down-hole end of the hollow drill rod. An expendable driving point will then be inserted into the opening of the expendable point holder.
4. The hollow core tool string, sample tubing, and expendable sample point will be advanced to the desired sample depth using the direct-push rig. As needed with increasing depth, the up-hole end of the sample tubing will be inserted through additional hollow drill rods, and the additional rods will be added to the tool string.
5. Once the point has reached the desired depth, the tool string will be lifted approximately one half-inch, creating an opening between the hollow tool string and the driving shoulder of the expendable point, allowing a sample to be collected from the bottom of the boring. Lifting the tool string approximately one half- inch will create a gap large enough for soil gas to pass through, but not so large that the expendable point holder will completely lift off the point. If adequate separation between the drill rod and expendable point cannot be achieved and soil gas cannot be drawn from the bottom of the borehole, the expendable point will be removed entirely to collect that sample. To collect subsequent samples from greater depths, the rig will move approximately 1 foot from the original boring location and re-drill, using the above-described methodology to collect remaining soil gas samples at the given location.

Soil gas samples will be collected using the following procedures:

1. The up-hole end of the sample tubing will be connected to a flow regulator and vacuum pump/vacuum box (lung box) as shown on Figure 4. The pump/lung box will be a Xitech Instruments, Inc. Model 1060 1 L Bag Sampler or similar.
2. The pump will be turned on and purge valve on the lung box opened to clear the sample train of ambient air. The purge rate will be less than 200 mL per minute, and at least three tubing volumes plus the volume of the exposed borehole will be purged before collecting a sample.
3. Once purging is complete, the purge valve on the lung box will be closed to draw soil gas into a Tedlar bag.

During purging, soil gas will be field screened for VOCs using a photoionization detector (PID). The PID utilizes a 10.6 eV lamp and will be calibrated at the beginning of each field day. Calibration checks may be performed periodically using a calibration gas standard with known VOC concentration.

Once collected, soil gas samples will be analyzed for the VOCs PCE, trichloroethene (TCE), benzene, and ethylbenzene using a HAPSITE field-portable gas chromatograph/mass spectrometer and contracted mobile laboratory personnel. Mobile laboratory analytical procedures are provided in Appendix B.

Since the objective of the soil gas sample effort is to identify potential source materials, and the data will not be used for human health risk assessment purposes, the HAPSITE will be set up to achieve reporting limits of approximately 100 parts per billion by volume (ppbv) for the four VOCs listed above (equates to approximately 678 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) PCE). The reporting limits may be adjusted throughout the sample effort as necessary based on site conditions.

In addition to mobile laboratory analyses, at least one sample per twenty will be submitted to Air Toxics in Folsom, California for VOC analysis by United States Environmental Protection Agency (EPA) Method TO-15. Samples destined for laboratory analyses will be collected in evacuated, batch-certified, one-liter Summa canisters fitted with calibrated flow controllers. The sampling procedures are below:

1. Immediately after a mobile laboratory sample has been collected as describe above, the lung box, Tedlar bag, and vacuum pump will be removed from the sample train and replaced by the Summa canister.
2. The flow controller on the canister will be opened to draw the sample at a rate not greater than 200 millileters per minute (mL/min) and then closed when the canister vacuum is five inches of mercury (in Hg).

Once all soil gas samples have been collected from a boring, the boring will be abandoned by backfilling with granular bentonite and hydrating the bentonite with tap water. Surface restoration activities are discussed in Section 8.0.

2.1.2 Quality Assurance/Quality Control (QA/QC)

Field and laboratory QA/QC procedures will follow Section B2.5 of the Facility-Wide Quality Assurance Project Plan (QAPP) (Appendix B of the Facility-Wide Sampling and Analysis Plan (Facility-Wide SAP) (Kennedy/Jenks, 2006)). Field Quality Control (QC) samples will consist of field duplicates and will be collected at a frequency of one duplicate per 20 natural samples. QC samples will be labeled as described in Section B2.3.3 of the Facility-Wide QAPP.

Since the same length of tubing will be used to collect samples from multiple depths within the same borehole, QC samples will be collected after the first boring and at least once per ten borings to evaluate whether cross-contamination is occurring. The following procedures will be used for these samples:

1. After a boring has been completed and all soil gas samples collected from that boring, sample tubing will be removed from the borehole to expose the down-hole end to the ambient air. The up-hole end of the tubing will remain connected to the sample train.
2. An ambient air sample will be drawn through the used sample tubing using the vacuum pump and vacuum box and into a Tedlar bag.
3. The tubing will then be disconnected from the sample train and a second ambient air sample will be collected directly through the inlet of the vacuum box and into a second Tedlar bag.

The two ambient air samples will be analyzed for the same constituents as the natural samples using the mobile laboratory procedures described above, and the relative percent difference (RPD) between sample results will be used to evaluate whether appreciable quantities of VOCs are being desorbed from the inside of the sample tubing. If analytical results of these QC samples indicate that cross contamination is occurring, new tubing will be used to collect every sample.

Drill rods, driving points, and tubing adapters will be decontaminated between borings by first cleaning with phosphate-free detergent using a brush and tap water, then rinsing with tap water, and finally rinsing with distilled water. Non-disposable components of the sampling train will be flushed with clean air between samples. Tedlar bags will not be reused.

In order to detect surface breakthrough of ambient air during soil gas sample collection, a tracer gas will be introduced around the borehole at the ground surface during the collection of the shallowest soil gas sample (four feet BGS) from each boring. The resulting frequency of tracer gas application will range from a minimum of once per ten samples in the deepest borings (approaching 40 feet BGS), to a maximum of once per sample in the shallowest borings (as shallow as four feet BGS).

Tracer gas procedures will follow DEQ Vapor Intrusion Guidance (DEQ, 2011) and will include the introduction of helium gas beneath a shroud that encapsulates the above-ground portion of the tool string. Helium concentration will be measured using a helium gas meter until the measured concentration beneath the shroud is at least 20 percent (200,000 ppm). The helium meter will then be connected to the downstream end of the sample train to measure helium concentrations during purging. If helium is detected during purging at a concentration less than or equal to 10% of the helium concentration measured under the shroud, the sample will be collected as described above. If helium is detected at greater than 10% of the shroud concentration (indicating surface breakthrough is occurring), field personnel will attempt to seal the borehole around the tool string using hydrated bentonite or a similar material. If evidence of surface breakthrough persists, the sample will not be collected and the boring will be abandoned.

Laboratory QC measures will consist of tune checks, 3-point (minimum) calibration, method blanks, continuing calibration verification samples, and lab duplicates and will be run at the frequencies listed in Appendix B.

2.1.3 Soil Gas Sample Labeling

Each soil gas sample will be labeled with “LRGT3” for “Livingston Restoration Group – Task 3,” followed by identifiers indicating: 1) the boring from which it was collected, 2) the depth BGS from which it was collected, and 3) “SG” for “Soil Gas.” For example, a soil gas sample collected from boring number 13 at 12 feet BGS would be labeled “LRGT3-B13-12-SG.” Samples destined for laboratory analyses will be labeled in the same manner, except the letter “L” will follow the sample identification, for “Laboratory”. For example, if a soil gas sample collected from boring LRGT3-B13 at 12 feet BGS is submitted for laboratory analysis, it will be labeled “LRGT3-B13-12-SG-L.”

2.1.4 Chain-of-Custody Procedures

The chain-of-custody procedures discussed in Section B2.3.2 of the Facility-Wide QAPP will be followed.

2.1.5 Sample Shipping and Handling

Shipping and handling procedures that will be followed are provided in Section B2.3.4 of the Facility-Wide QAPP and in Standard Operating Guideline (SOG)-10 (Appendix A of the Facility-Wide SAP).

2.2 SOIL SAMPLING

A minimum of six (6) soil borings will be advanced within the footprint of the Cinder Pile in and down-gradient of potential PCE source materials. Soil borings will be located based on the following rationale:

- To characterize the subsurface below the highest observed concentration, a soil boring will be installed in the vicinity of GoreTM survey location, CP-3D.
- To characterize the subsurface near the relic sludge lagoons (see Figure 2), one soil boring will be installed in between GoreTM survey points CP-5D and CP-6D, and another approximately 25 feet southeast of GoreTM survey point CP-9D.
- To characterize the subsurface within the area of high observed concentration within the footprint of the Cinder Pile near the upgradient side, one soil boring will be installed between GoreTM survey points CP-2B and CP-3C.
- To characterize the subsurface in the area of highest observed contamination along the northwestern side of the Cinder Pile, one soil boring will be installed in the vicinity of GoreTM survey point CP-2A, and one soil boring will be installed in the vicinity of GoreTM survey point CP-8A.

Alluvial aquifer groundwater monitoring wells will be constructed in each boring as discussed in Section 2.3.1. The approximate boring locations are shown on Figure 3; however, final locations will be chosen in the field using the results of soil gas sampling. Additional soil borings may be advanced, if necessary, at locations where Geoprobe[®] DPT soil borings and associated soil gas sampling are unsuccessful.

2.2.1 Soil Sample Collection and Analysis

Borings will be advanced using rotosonic drilling or other suitable drilling technique and will have terminal depths at the alluvium/bedrock interface. Field personnel will log the lithology of soils encountered using procedures described in SOG-13 (Appendix A of the Facility-Wide SAP).

Soil samples will be collected at 2-foot depth intervals beginning at the ground surface and ending at the soil/groundwater interface. The samples will be screened in the field for VOCs using a photoionization detector (PID), as described in SOG-4A of the Facility-Wide SAP. In addition to PID screening, soils will be field tested for iridescent sheen as described in Section 5.1.2 of the Facility-Wide SAP, and non-aqueous phase liquid (NAPL) using a hydrophobic dye such as Oil Red O.

Soil samples that exhibit elevated VOC concentrations or that indicate the presence of NAPL will be containerized in laboratory supplied jars and submitted to Energy Laboratories in Helena or Billings, Montana for analyses by EPA Method SW8260. Samples that show evidence of petroleum comingled with solvent will also be analyzed for hydrocarbon identification by Modified EPA Method 8015 to ascertain the chemical composition of the petroleum mixture. Soil sample collection procedures are presented in SOG-7 (Appendix A of the Facility-Wide SAP).

2.2.2 QA/QC

Field and laboratory QA/QC procedures will follow Section B2.5 of the Facility-Wide QAPP. Field duplicate and equipment rinsate blank samples will be collected during soil sampling at a frequency of one duplicate and one blank per 20 natural samples. Duplicate samples will be collected by splitting a natural sample in the field, and rinsate blanks will be collected by pouring laboratory supplied deionized water through or over sampling equipment and into a laboratory-supplied container. QA/QC samples will be submitted to Energy Laboratories in Helena or Billings, Montana and analyzed for the same constituents as the natural samples.

2.2.3 Soil Sample Labeling

Soil samples will be labeled with an identifier indicating the boring from which it was collected (same as monitoring well number) followed by the depth BGS from which it was collected, followed by “S” for “Soil”. For example, a soil sample collected from the boring for well LRG-MW1 from 2 to 4 feet BGS will be labeled “LRG-MW1-2-4-S.” QC samples will be labeled as described in Section B2.3.3 of the Facility-Wide QAPP.

2.2.4 Chain-of-Custody Procedures

The chain-of-custody procedures presented in Section B2.3.2 of the Facility-Wide QAPP will be followed.

2.2.5 Sample Shipping and Handling

Shipping and handling procedures that will be followed are provided in Section B2.3.4 of the Facility-Wide QAPP and in SOG-3 (Appendix A of the Facility-Wide SAP).

2.3 GROUNDWATER MONITORING

2.3.1 Groundwater Monitoring Well Installation

Groundwater monitoring wells will be constructed in the soil borings discussed above to evaluate the distribution of dissolved VOCs in groundwater and to monitor the effectiveness of future remedial actions. The approximate locations of the wells are shown on Figure 3; however actual locations will be selected based on soil gas sampling results.

New groundwater monitoring wells will be designated as LRG-MW-1, LRG-MW-2, etc.

Wells will be constructed by a licensed monitoring well constructor in general accordance with SOG-14 (Appendix A of Facility-Wide SAP). Well materials will be 4-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and 0.01-inch slotted Schedule 40 PVC well screen. The wells will be screened in the alluvial aquifer, and screened intervals will be determined in the field based on the subsurface conditions encountered. Silica sand filter pack material will be placed in the annular space from the bottom of each well to approximately 2 feet above the top of the well screen, followed by a granular bentonite seal to prevent the infiltration of surface water. The well heads will be sealed with locking caps and covered with steel flush-mount well monuments. The monuments will be cemented in place. The monitoring wells will be constructed in compliance with ARM 36.21.801, et seq.

Following construction, monitoring wells will be developed by surging and pumping or hand-bailing to remove fine sediment from the well and filter pack. Wells will be developed until the pumped or bailed groundwater is relatively free of sediments. Well development procedures are identified in SOG-15 (Appendix A of the Facility-Wide SAP). The licensed monitoring well constructor will complete a well log report and file it with the Ground Water Information Center (GWIC) of the Montana Bureau of Mines and Geology and the Department of Natural Resources and Conservation within 60 days.

An initial survey of groundwater monitoring well elevations must be completed by a licensed surveyor or professional engineer registered in the State of Montana in accordance with MCA § 37-67-301 et seq. and

ARM 24.183.101 et seq. Survey results must provide an accuracy of plus or minus 0.1 foot horizontally and plus or minus 0.01 foot vertically. The vertical control datum used to determine the elevation of the well must be the North American Vertical Datum of 1988 (NAVD 88), which should be referenced to a nearby United States Geological Survey (USGS), or equivalent, benchmark.

At CECRA facilities, latitude and longitude coordinates reference the State Plane NAD83 HARN Coordinate System, which should also be referenced to a nearby USGS, or equivalent, horizontal control mark.

2.3.2 Groundwater Sample Collection and Analysis

Groundwater monitoring will be conducted using the low-flow purge and sample procedures presented in SOG-8 (Appendix A of the Facility-Wide SAP). During purging, water quality parameters (temperature, pH, specific conductivity, oxidation-reduction potential, and dissolved oxygen) will be measured. Groundwater samples will be collected in laboratory supplied containers and submitted to Energy Laboratories in Helena or Billings, Montana for analysis of VOCs by EPA Method 8260. Well purging and sampling information will be recorded in field notebooks and groundwater sample information forms.

2.3.3 QA/QC

Field and laboratory QA/QC procedures will follow Section B2.5 of the Facility-Wide QAPP. During groundwater sampling, one field duplicate sample and one equipment rinsate blank sample will be collected. The duplicate sample will be collected by splitting a natural sample in the field, and the rinsate blank will be collected by pouring laboratory-supplied deionized water through or over sampling equipment and into a laboratory supplied container. One trip blank sample will be included with each cooler of samples submitted to the laboratory. QC samples will be analyzed for the same constituents as the natural samples.

2.3.4 Groundwater Sample Labeling

Groundwater and QC samples will be labeled according to Section B2.3.3 of the Facility-Wide QAPP. Groundwater sample identification numbers will correspond to the well name.

2.3.5 Chain-of-Custody Procedures

The chain-of-custody procedures presented in Section B2.3.2 of the Facility-Wide QAPP will be followed.

2.3.6 Sample Shipping and Handling

The sample shipping and handling procedures discussed in Section B2.3.4 of the Facility-Wide QAPP and SOG-3 (Appendix A of the Facility-Wide SAP) will be followed.

3.0 DATA ANALYSIS AND EVALUATION

The data and information obtained from the RD Study will be reviewed to address the objectives as discussed in the following subsections.

3.1 SOIL GAS SAMPLING DATA

Soil gas sample locations, depths, and analytical results from BNSF grid samples and WET's focused step-out samples will be compiled and used to prepare concentration maps depicting the soil gas VOC concentrations. Maps may include isocontours depicting maximum and/or average VOC concentrations detected in soil gas samples, cross-sections depicting the vertical and horizontal distribution of detected VOC concentrations, and three-dimensional models of the locations and extent of suspected PCE source materials, if any.

3.2 SOIL SAMPLING DATA

Analytical results of soil samples collected during monitoring well drilling will be compiled and compared with soil gas sampling results to further delineate potential source materials. Soil analytical results may also be correlated with soil gas concentrations and extrapolated to estimate VOC soil concentrations in other areas of the Cinder Pile.

3.3 GROUNDWATER MONITORING DATA

Groundwater data will be used in conjunction with data from existing wells at the Facility to prepare maps depicting the distribution of dissolved VOC concentrations in groundwater in and down-gradient from potential source areas. Localized groundwater flow and concentration patterns will be compared with the locations of suspected and/or confirmed source materials to evaluate whether the source materials are contributing substantially to dissolved-phase VOCs in groundwater at the Facility and, if so, the degree of such contribution.

4.0 SCHEDULE

WET will begin RD Study activities upon DEQ approval of this work plan. Field activities associated with the RD Study are projected to take approximately six weeks to complete.

5.0 DELIVERABLES

WET will use the data gathered during the RD Study to prepare an RD Study Report, which will consist of a summary of field activities and analytical results; a discussion of the Cinder Pile's potential contribution to dissolved VOCs in groundwater at the Facility; and recommendations for future remedial actions.

6.0 DATA VALIDATION AND MANAGEMENT

Both field and laboratory data generated during the implementation of the RD Study will be managed as described in Section B2.10 of the Facility-Wide QAPP. In addition, data generated during the RD Study will be reviewed, verified, and validated as outlined in Section B4.0 of the Facility-Wide QAPP. Data from the RD Study will be evaluated as discussed in Section 3.0 of this work plan.

7.0 INVESTIGATION – DERIVED WASTE (IDW) MANAGEMENT

The IDW that will be generated during implementation of the RD Study are listed below:

- IDW generated during soil gas sampling activities include decontamination water and non-indigenous IDW (i.e., disposable personal protective equipment (PPE), disposable sample equipment).
- IDW generated during soil boring and soil sampling activities include soil cuttings, decontamination water, and non-indigenous IDW.
- IDW generated during monitoring well construction and groundwater sampling activities include well development water, decontamination water, purge water, and non-indigenous IDW.

Since the RD Study is being conducted in an area containing F-listed constituents and/or asbestos, construction/development water, purge water, soil cuttings, and decontamination water generated during field activities will be reasonably expected to contain F-listed constituents and/or asbestos. All material will be sampled for F-listed constituents prior to disposal determine whether it contains a listed hazardous waste under the Resource Conservation and Recovery Act. DEQ will be consulted prior to disposing of any materials that are determined to contain F-listed wastes.

An asbestos inspector and contractor supervisor accredited by DEQ will be physically present during well drilling activities and will determine whether soil cuttings contain suspected asbestos materials. If suspected asbestos is observed in the drill cuttings, the material will be segregated, and the asbestos inspector/supervisor will initiate the immediate transport and disposal of the material (including required permits, which will be obtained from DEQ's Asbestos Control Program). Asbestos material will not be disposed until it is sampled for F-listed constituents as described above.

Any asbestos removal will employ conventional dust suppression methods to limit potential asbestos exposure, including spraying water, direct loading into trucks, covering trucks with tarps, and having workers positioned upwind of the excavation. A Montana-Accredited Asbestos Inspector and Competent Person will oversee all asbestos cleanup. All other workers will be properly accredited by the State of Montana. The work will comply with Administrative Rules of the State of Montana (ARM) 17.74.369. All asbestos will be adequately wetted, packaged in a leak-tight container, adequately labeled, transported in a vehicle that is signed, and disposed of as soon as is practical at a Class II or Class IV landfill.

All IDW will be contained in a secured area as described in Section 8.0 of the Facility-Wide SAP and associated Addenda and be managed as hazardous wastes and/or asbestos-containing materials (ACM), unless determined otherwise through analytical testing and DEQ "no-longer contained-in" determinations.

Non-indigenous IDW will be handled as a non-hazardous waste in accordance with Section 8.4.3 of the Facility-Wide SAP unless the materials are saturated with solvent-containing groundwater or solvent-containing decontamination water, or materials are coated with solvent-containing soil or residue that cannot be removed. In that case, the non-indigenous IDW will be managed as hazardous waste in accordance with Section 8.4 of the Facility-Wide SAP. Non-indigenous IDW that comes into contact with suspected ACM will be managed as ACM as described above, unless analytical testing of the suspected ACM determines it contains less than one percent asbestos.

8.0 FACILITY RECLAMATION AND REVEGETATION

As discussed in Section 1.1, engineering controls were implemented in 2005 to limit exposure to potential asbestos-containing materials within the Cinder Pile. The controls include perimeter fencing and signage, a two-foot thick soil cap, and planted vegetation. Field activities conducted as part of this RD Study will disturb these engineering controls. Sections of perimeter fence may be dismantled temporarily to allow vehicle and equipment access; and soil borings will penetrate the low-permeability cap and vegetation.

Engineering controls that are disturbed will be restored upon completion of field activities. Sections of perimeter fencing that are dismantled to allow access will either be replaced daily, or temporary fencing will be erected in its place until the permanent fencing is replaced. Near surface backfill for soil borings will consist of granular bentonite with a permeability of less than 1×10^{-5} centimeters per second. Soil boring activities typically create a small area of disturbance and boring locations will not be reseeded after backfilling. However, areas of significantly disturbed soil or vegetation that are created by vehicle and equipment movement on the Cinder Pile will be re-vegetated as necessary using the DEQ approved seed mixture and seed bed preparation techniques included in the January 31, 2005 Cinder Pile Work Plan.

9.0 HEALTH AND SAFETY PLAN (HASP)

The task-specific HASP for the RD Study has been prepared in accordance with applicable health and safety regulations. The task-specific HASP is provided in Appendix C and is designed for use in conjunction with the Facility-Wide Health and Safety Plan (Revision No. 3) (Kennedy/Jenks, 2008b). The task-specific HASP will be finalized and signed when this work plan is approved. It is understood that DEQ does not approve HASPs.

10.0 PERMITS

The City of Livingston requires permits to construct groundwater monitoring wells; these permits will be obtained prior to well construction activities.

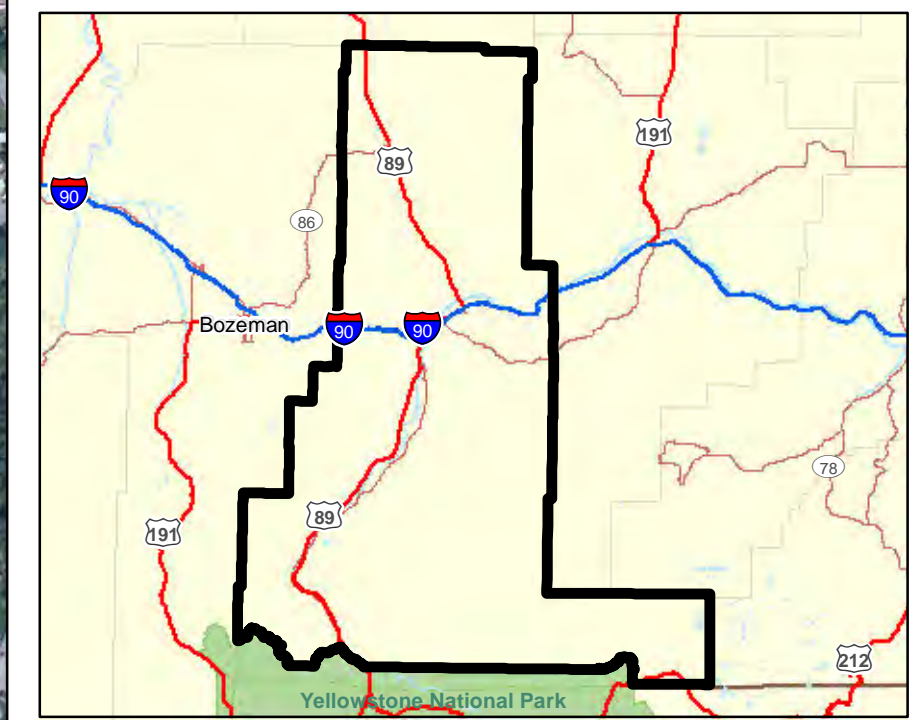
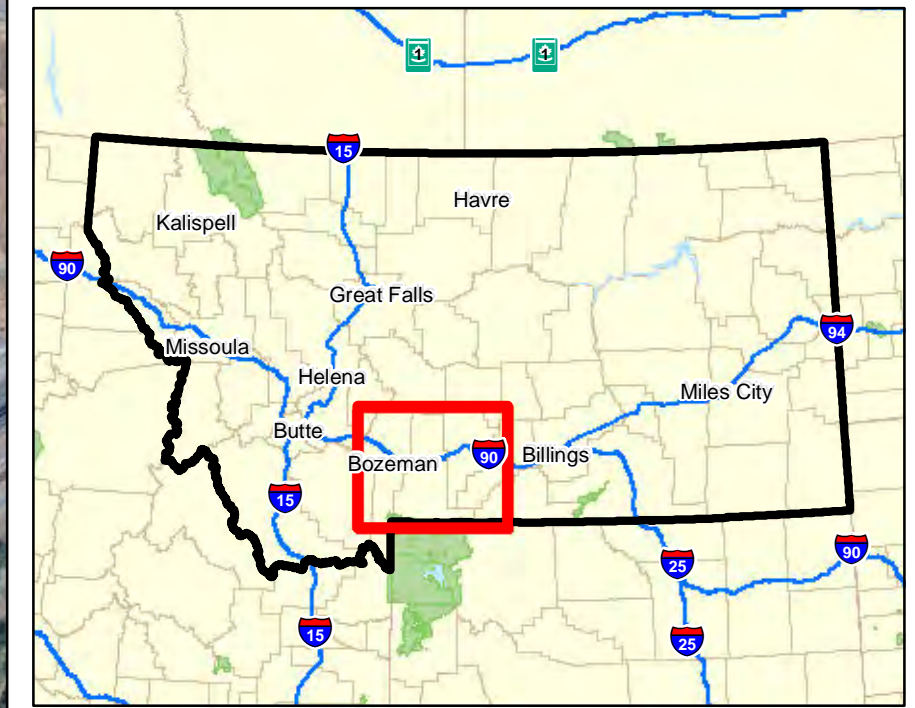
11.0 ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLs)

ERCLs developed by DEQ for the Facility are included in Appendix A of the ROD. An evaluation of how the activities conducted during this RD Study will comply with ERCLs is included in Appendix D of this Work Plan. Activities identified in this RD Study Work Plan comply with ERCLs.

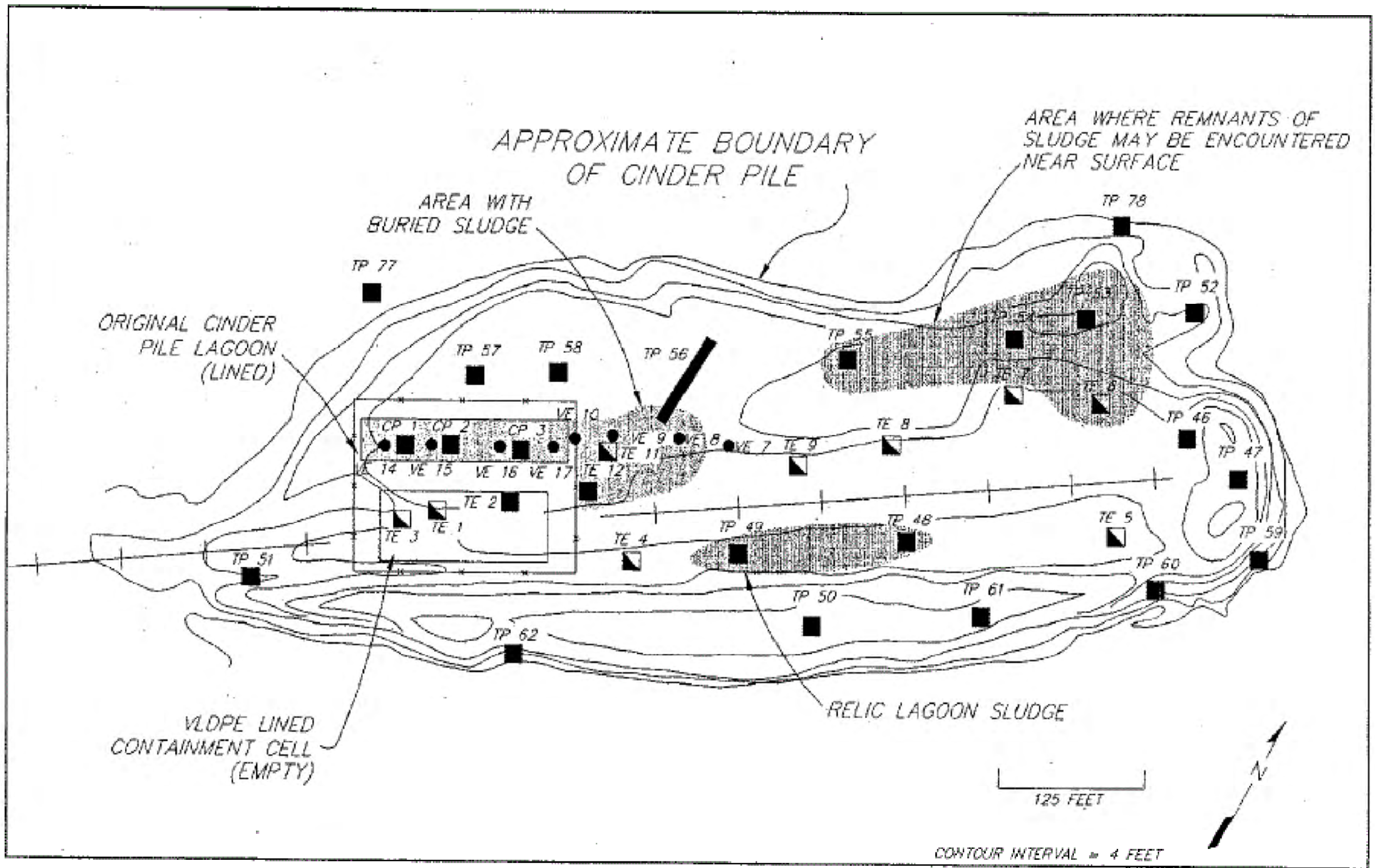
12.0 REFERENCES

- DEQ, 2001. Record of Decision, Burlington Northern Livingston Shop Complex, Montana Department of Environmental Quality, Remediation Division, September 2001
- DEQ, 2011. Montana Vapor Intrusion Guide, Montana Department of Environmental Quality, April 2011
- Envirocon, 2011. 2nd Draft Cinder Pile Cap Remedial Action Report, Livingston Rail Yard, Livingston, Montana, Envirocon 2011 Cinder Pile Cap RA Report, Envirocon, Inc., December 29, 2011
- Kennedy/Jenks, 2006. Final Facility-Wide Sampling and Analysis Plan, Burlington Northern Livingston Shop Complex, Livingston, Montana, Kennedy/Jenks Consultants, March 2006
- Kennedy/Jenks, 2008a. Tasks A and H: Comprehensive Interim Action and Confirmation Sampling Summary Report, Burlington Northern Livingston Shop Complex, Livingston, Montana, Kennedy/Jenks Consultants, April 2008
- Kennedy/Jenks, 2008b. Facility-Wide Health and Safety Plan (Revision No. 3), Burlington Northern Livingston Shop Complex, Livingston, Montana, Kennedy/Jenks Consultants, May 2008
- Kennedy/Jenks, 2013. Addendum No. 2 to DEQ Version of Task L Supplemental Investigation Work Plan for Bedrock Aquifers, Burlington Northern Livingston Shop Complex, Livingston, Montana, Kennedy/Jenks Consultants, May 2013
- .

FIGURES



SITE LOCATION	
<i>Burlington Northern Livingston Shop Complex</i>	
Job#: LRGM01 Task 3	FIGURE 1
Date: 8/9/2013	
<small>Path: M:\LRGM01\Task3\Work Plan Maps\Figure_1.mxd, Author: amorton</small>	



SYMBOL LEGEND

■	TEST PIT & SOIL SAMPLE LOCATIONS
◼	TEST PIT ONLY
⊗	CONTAMINATED AREA
—	FENCE
●	VAPOR EXTRACTION WELL & SOIL SAMPLE LOCATIONS

BURLINGTON NORTHERN	LIVINGSTON RAIL YARD	REMAINING SLUDGES ON THE CINDER PILE
ENVIROCON, INC.	Source: Esri, DigitalGlobe, GeoEye, iGeobase, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community	10/05/92

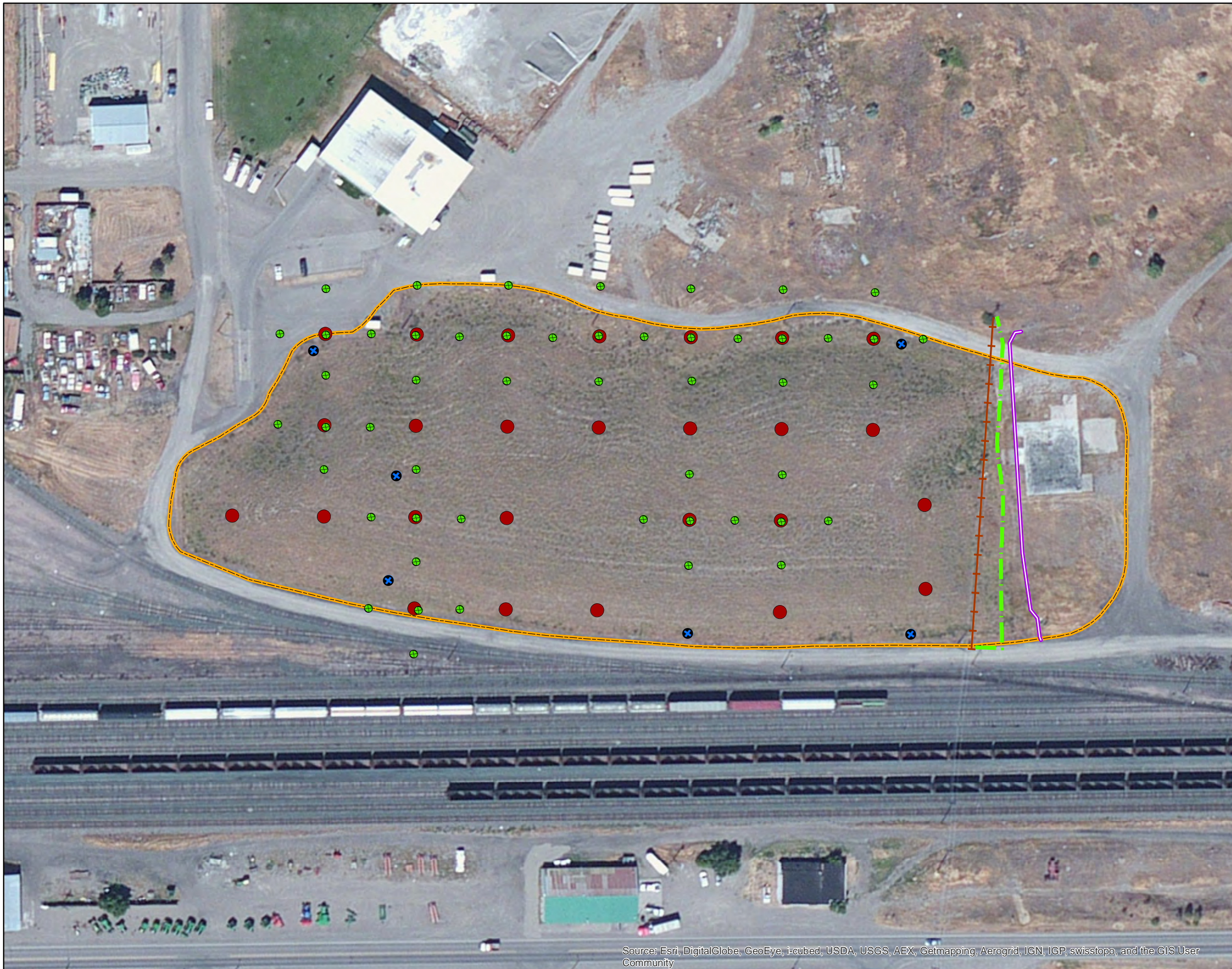
WATER & ENVIRONMENTAL TECHNOLOGIES, PC

LIVINGSTON RAIL YARD
Historical Site Features (ENVIROCON, 1992)

Job#: LRG01 Task 3
Date: 7/7/2014

FIGURE 2

FIGURE 3.16

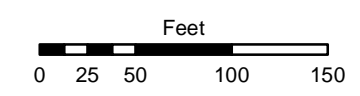


Legend

- Focused Boring Location Using 50' Step Out Approach
- Initial Boring Location Using 100' x 100' Grid Approach
- ⊗ Soil Boring and Ground Water Monitoring Well Location
- Fiber Optic Conduit
- Overhead Power
- - - Underground Telephone
- Site Boundary
- Typical Focused Boring Area

Note: Focused boring locations show only to depict typical step out approach. Actual focused locations will be selected in the field using "real time" interpretation of grid sample analytical results.

Note: Soil boring and ground water monitoring well locations are approximate. Actual locations will be selected using results of soil gas sampling

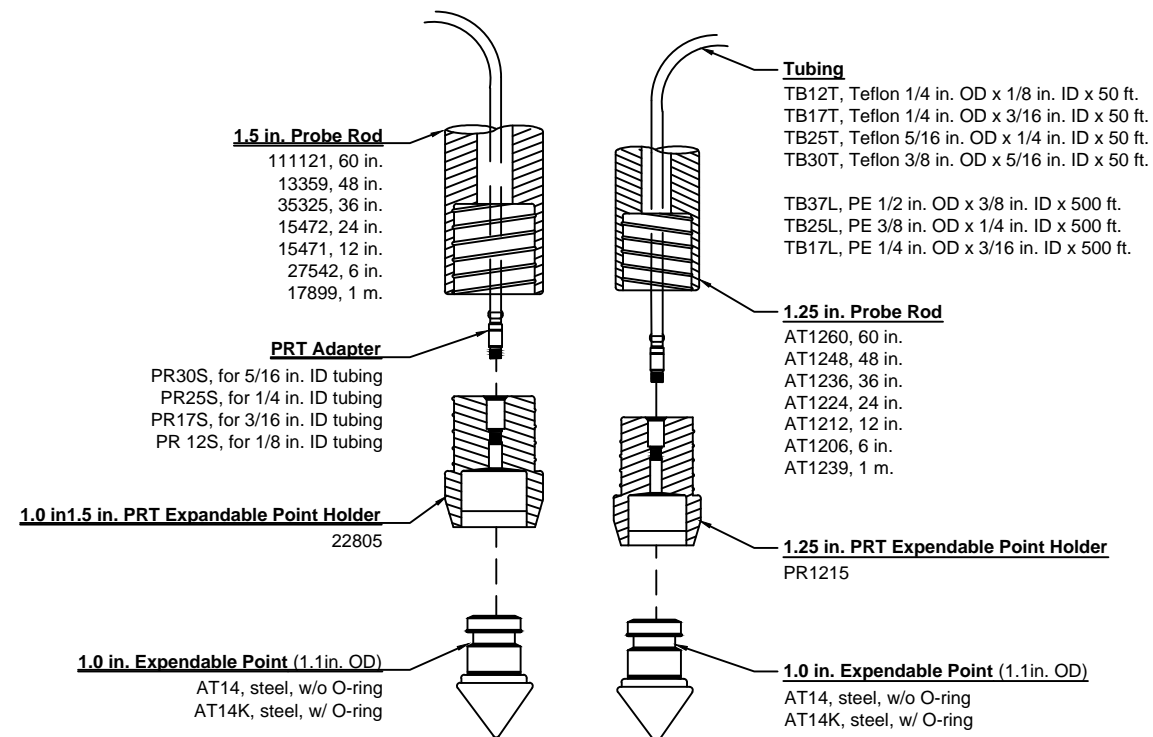
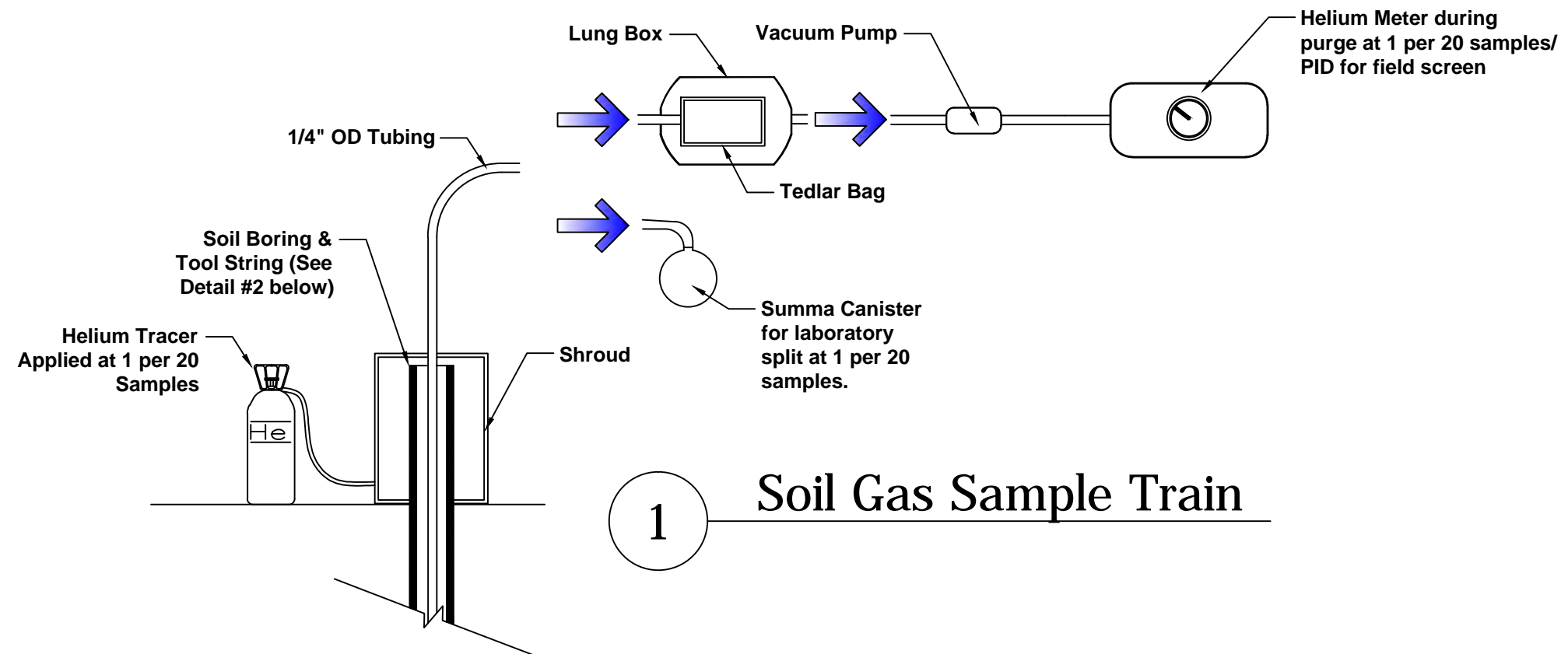


CURRENT SITE FEATURES & PROPOSED SAMPLE LOCATIONS

Burlington Northern Livingston Shop Complex

Job#: LRGM01 Task 3	FIGURE 3
Date: 7/7/2014	
Path: M:\LRGM01\Task3\Fig3_SiteFeatures.mxd, Author: mtery	

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

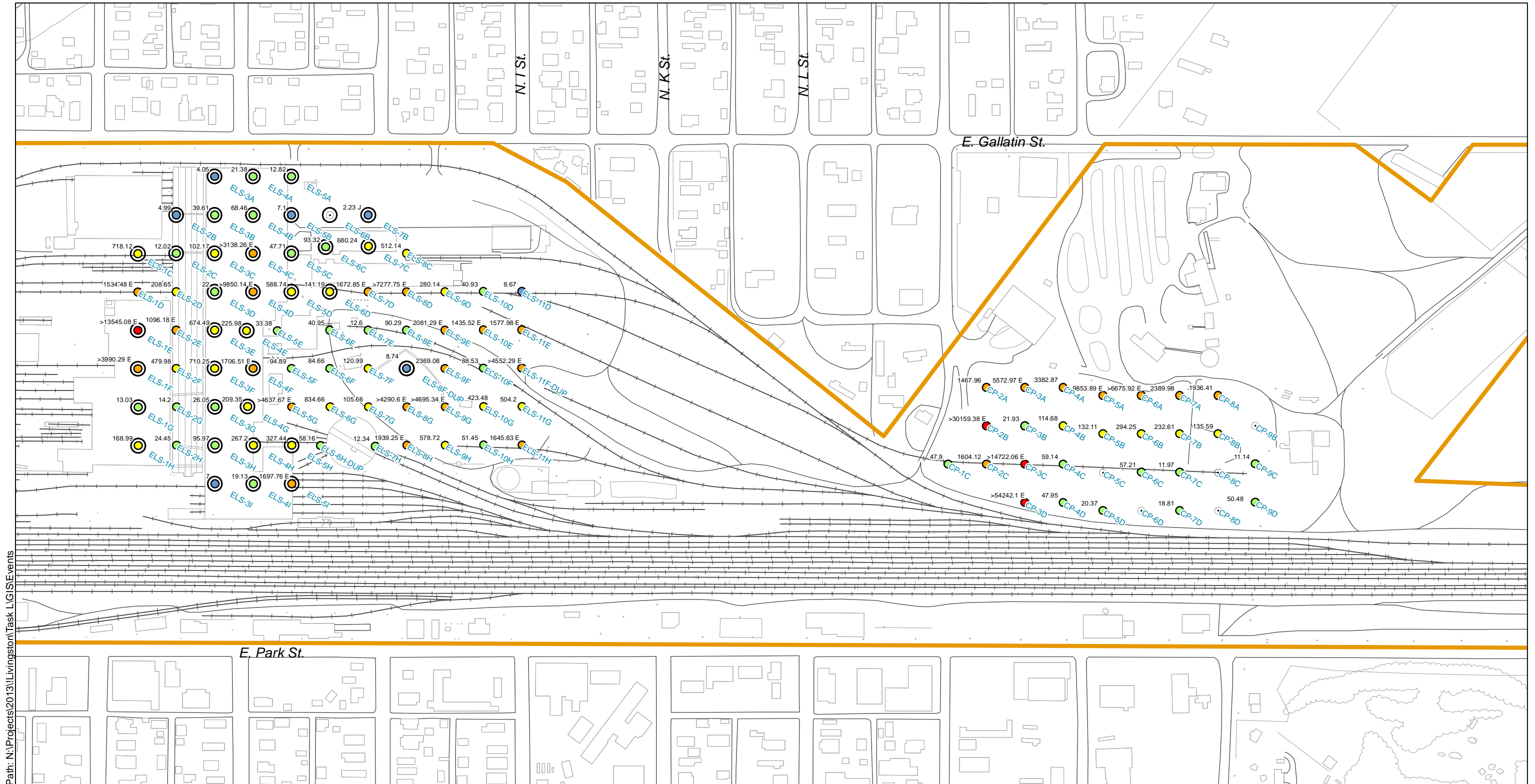


2 Geoprobe PRT System Tool String

WATER & ENVIRONMENTAL TECHNOLOGIES, PC
SOIL GAS SAMPLE TRAIN AND GEOPROBE PRT SYSTEM TOOL STRING
DETAILS
 Job: LRGM01 Task 3
 Date: 7/7/2014
FIGURE 4

Appendix A

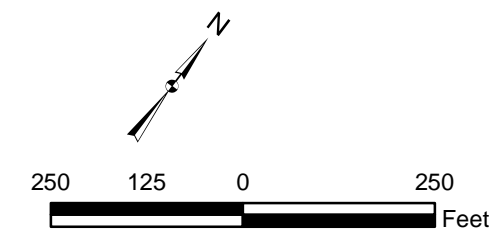
BNSF Shallow Soil Gas Sample Locations and PCE Concentrations



Path: N:\Projects\2013\Livingston\Task L\GIS\Events

Legend

PCE CONCENTRATION (ug/m3)	○ SOIL GAS SAMPLE LOCATION, JULY 2013
● <10	○ SAMPLED THROUGH CONCRETE
● 10-100	▭ APPROXIMATE RAILYARD PROPERTY BOUNDARY
● 100.1-1000	— RAILROAD
● 1000.1-10000	— APPROXIMATE BUILDING OUTLINE
● >10000	



Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP
COMPLEX - LIVINGSTON, MT

**TASK L - SOIL GAS PCE
CONCENTRATION**

1396021*16

8/13

FIGURE 10

Appendix B

Mobile Laboratory Analysis SOP and Approximate Reporting Limits

Soil Gas Analysis by Field-Portable GC/MS

Standard Operating Procedures

Effective Date: October 08, 2013

1.0 Introduction

This SOP is a project specific SOP for the analysis of Soil Gas VOC's by field-portable Gas Chromatograph coupled with a Mass Spectrometer (GC/MS). The compounds listed in Table 1 have been evaluated and are suitable for analysis with this method.

2.0 Summary of the Method

The method was developed by KD Analytical personnel for critical decisions being made from the field analytical results. It is critical these results be definitive. Therefore GC/MS is the only way the analysis can be performed. The instrument is operated in full scan mode to definitively identify and quantify compounds of concern, and also identify any other VOC's that may be present.

Operation of a GC/MS in full scan mode allows for detection of specific analytes. The MS gathers data for all ion masses over a wide range. The masses are then compared to a NIST library for spectral ion ratio match. The ratios of those ions will be unique to the analyte of interest.

TABLE 1: COMPOUND LIST FOR ON-SITE ANALYSIS

Compound	CAS Number	Quant Mass	Detection
Benzene	71-43-2	78	100ppbv
Ethyl Benzene	100-41-4	91	100ppbv
Trichloroethene	79-01-6	95	100ppbv
Tetrachloroethene	127-18-4	166	100ppbv

3.0 Interference

Compounds which are not baseline-resolved (co-elute) with the other target analytes or internal standards/surrogates listed in Table 1 may be interferences. Generally, these co-eluting compounds can be separated by their mass fragmentation patterns. However, some compounds may have fragment ions in their mass spectra, which are identical to the quantitation ion of a target analyte. This may produce a false positive or error in the reported concentration.

The software provides both a fit and purity measurement. Co-elution has not been determined to be a problem with the chlorinated compounds listed in the method. Compounds that would present a problem are the aliphatic and olefin compounds found in petroleum products.

4.0 Safety

Safety is of utmost importance during all projects. On-site safety procedures established by the client will be adhered to at all time. It is the responsibility of KD Analytical personnel to ensure they are aware of all safety procedures and hazards they may encounter on-site.

Proper personal protective equipment (PPE) including safety glasses, and steel-toed shoes will be worn when working.

In addition to site specific and general field safety procedures, KD Analytical personnel must adhere to standard safe laboratory practices. This includes:

- Maintenance and availability of Material Safety Data Sheets (MSDS)
- Use of appropriate PPE during the handling and preparation of standards
- Safe high pressure cylinder handling practices

Note: All hazardous, neat materials stored on-site must have a copy of the MSDS maintained on-site as well. This does not include working standards and standard mixtures.

5.0 Equipment and Supplies

5.1 Instrumentation

Inficon Hapsite GC/MS
Supelco SPB 1, 30m x .32mm id x 1.0 μ m film column
Peripherals (Computer, Printer, Consumables, etc.)

5.2 Materials

1 Liter Tedlar Bags
Neat Liquid Standards
Syringes: - 1ml, 5ml, 10ml, 50ml Teflon Luer Lock gastight

5.3 Gases

Carrier: Nitrogen 99.999% purity (for portable mode Inficon # 930-430)
Mass Calibration: Internal Standard 1 Inficon # 930-431

(50ppmv) Bromopentafluorobenzene,

(100ppmv) 1,3,5 tris (trifluoromethyl) benzene

6.0 Instrument Parameters

6.1 GC Conditions

Column Temp.	65° C
Head Pressure	104 pa
Inlet Temp.	60° C
Probe Temp.	40° C
Valve Temp.	60° C
Run Time	10 Min.

6.2 MS Conditions

Scans/Sec.	1.04 scans/sec.
Getter Pump Temp.	400 - 480° C
Scan Range	45 - 250 amu

7.0 QA/QC Procedures

Table 2: Quality Control

Quality Control Check	Minimum Frequency	Acceptance Criteria	Corrective Action
Tune Check	Every 12 Hours	Ion Abundance Criteria as Determined by Manufacturer	Adjust Tune Until Meets Criteria
3 – Point (Minimum) Calibration	Prior to start of project or as required for acceptance criteria	%RSD \leq 25%	Re-run Levels Which Do Not Meet Criteria
Beginning of Day Continuing Calibration Check	Beginning of Each Day	\pm 30% Difference of the Initial Calibration	1) Repeat Analysis 2) Prepare and Run New Standard from Stock 3) Recalibrate
Lab Duplicates	5% of the Samples or 1 per batch of 20	Relative Percent Difference \leq 30%	1) Analyze a third Aliquot 2) Flag Reported Data
Method Blank	Before Beginning of Day	Concentrations for All Calibrated Compounds < DL	Re-run Blanks until Criteria are Met

7.1 Initial Calibration

The initial calibration will contain a minimum of 3 levels consisting of the analytes of interest listed in Table 1. The low level will be 100 ppb which is equal to the reporting limit for this project. The highest level should encompass the linear range of the instrument or the highest concentration of the samples expected. Acceptance criteria for the initial calibration are 25% relative standard deviation (%RSD).

Corrective action for the initial calibration is to investigate the outlying level and reanalyze that level. If the problem is not corrected, it may be necessary to remake the standard or correct the problem with the instrument and reanalyze all levels.

7.2 Beginning of Day Tune Verification

The tune verification should meet manufacturer specifications, and repeated every 12 hours before the analysis of any samples.

Corrective action for the tune verification is to reanalyze the tune. If it continues not meet criteria, then the tune will be adjusted and saved manually.

7.3 Beginning of Day Continuing Calibration Verification

All compounds within a $\pm 30\%$ Difference from the Initial Calibration.

Corrective action for the Continuing Calibration is to reanalyze the standard. If it continues not meet criteria, remake the standard from the stock and reanalyze. If criteria are still not met, repeat the Initial Calibration.

7.4 Method Blank

The method blank should be analyzed before any samples. A blank should also be analyzed after any sample with concentrations exceeding the calibration range by 10%. The blank acceptance criteria are that no compounds are detected above the reporting limit.

Corrective action for the method blank is to reanalyze the blank. If the system is still not clean, take actions to remove the contaminants and reanalyze the blank. The blank must be clean before proceeding unless agreed upon with the client.

7.5 Duplicates

Laboratory duplicates should be performed on a minimum frequency of 5% of the total samples, or one per batch of twenty. The sample chosen to duplicate should contain concentrations of targets if possible. The acceptance criteria are 30% relative percent difference (% RPD).

Corrective action for the duplicate is to reanalyze the sample. If criteria are still not met, results must be flagged.

8.0 Detection Limits

To determine the method detection limits, a low level calibration standard will be analyzed as part of the initial calibration.

Samples exceeding 10% of the highest calibration point shall be diluted and re-analyzed.

Appendix C
Task-Specific Health and Safety Plan

Task Site Safety Officer: Steve Nicholls Phone: 406-782-5220

Task Field Site Safety Officer: Steve Nicholls Phone: 406-491-2778 (cell)

Task Description:

The RD Study involves advancing borings and constructing monitoring wells using conventional drilling techniques, collecting soil gas samples from borings, and collecting groundwater samples from monitoring wells. Detailed scope of work and procedures are described in the following documents:

- *Final Facility-Wide Sampling and Analysis Plan (SAP)* dated March 2006
- *Cinder Pile Remedial Design Study - Rev. 1, Water & Environmental Technologies, July 2014.*

Additional health and safety procedures are explained herein. Field work performed during the RD Study will adhere to safety protocols specified in the *Facility-Wide Health and Safety Plan (Revision No. 3)* (HASP) dated May 2008.

Task-specific health and safety protocols, and additional health and safety protocols and/or deviations from the *Facility-Wide Health and Safety Plan (Revision No. 3)*, if applicable, are outlined in this task-specific HASP.

Summary Information

Activity	Approx. Start Date	Approx. Duration (Days)	Field Personnel
Construction and development of groundwater monitoring wells.	TBD	2 weeks	Steve Nicholls Stephen Frazee
Overseeing advancement of soil borings and collection of soil gas samples.	TBD	4 weeks	Steve Nicholls Stephen Frazee
Groundwater sampling and analysis	TBD	1 week	Steve Nicholls Stephen Frazee

HAZWOPER and BNSF Safety Training:

No Yes Field personnel 40-hour and 8-hour HAZWOPER trained.

Field personnel to wear a photographic identification badge and carry proof of current BNSF training when working at the Livingston rail yard.

Applicable Sampling and Analysis Plan (SAP) and Standard Operating Guidelines (SOGs)

1. *Final Facility-Wide Sampling and Analysis Plan*
2. SOG-1, -2, -3, -4A, -4B, -5, -7, -8, -12, -13, -14, -15, -16 (Appendix A of *Final Facility-Wide Sampling and Analysis Plan*)
3. Cinder Pile Remedial Design Study, Water & Environmental Technologies, August 2013

Study Area:

The study area includes the areas in the vicinity of the shop complex and cinder pile as shown in the Cinder Pile RD Study Work Plan.

Task involves work within 25 feet of track:

No Yes If yes, describe means of work clearance and track control:

If work is to be performed within 25 feet of track, Montana Rail Link (MRL) will be notified that a flagger will need to be present at the work area. The flagger will oversee worker safety at the work area.

Physical Hazards:

Hazards associated with operating a drilling rig (noise, dust, overhead equipment falling, high-pressure pneumatic lines), underground utilities, equipment hauling, traffic control, and slip and trip. Potential electric hazards associated with operating sampling equipment.

Potential Chemical Hazards:	
Chemicals of Concern	TWA-PEL TLV, parts per million (ppm)
Tetrachloroethene	100 ppm / 25 ppm
Trichloroethene	100 ppm / 25 ppm
Cis-1,2-Dichloroethene	200 ppm / 25 ppm
Vinyl chloride	1 ppm / 1 ppm
Chlorobenzene	75 ppm / 75 ppm
1,4-Dichlorobenzene	75 ppm / 10 ppm
Asbestos	0.1 fiber/cm ³ / 0.1 fiber/cm ³
Personal Protective Equipment (PPE):	
Initial - Level D: Hard hat, safety toe boots, safety glasses with side shields, orange-reflective vest, and hearing protection as needed during field activities.	
Wear chemical resistant overalls, nitrile gloves when working with soil saturated with solvent or petroleum. Provide a hand wash station and an eye wash kit with two bottles, 1-liter each of buffered eyewash solution in work vehicle.	
Safety Measures and Monitoring:	
Follow <i>Facility-Wide Health and Safety Plan (Revision No. 3)</i> guidance. Do not enter any areas not intended for normal occupancy (e.g., confined spaces).	
Criteria for upgrading PPE (list threshold values in breathing zones, or other triggers for upgrading PPE):	
Withdraw from area and re-assess PPE requirements if there are noticeable odors in any work area or visible dust in area. Provide dust control (water applied at surface of boring) if dust emissions are present during drilling activities in the cinder pile.	
Work Zones:	
Work zones will be established during construction of groundwater monitoring wells and advancement of soil borings. No special work zones will be established around the wellhead for groundwater sampling. All field personnel (including subcontractors) must check in/check out with site safety officer (SSO) or field site safety officer (FSSO) on a daily basis.	
Other Work Requirements:	
Work only in areas with proper illumination or bring sufficient lighting to assess area for hazards.	
Community Protection Measures:	
Activities associated with the RD Study will be conducted on the railroad property, and no community protection measures are proposed. If necessary, access to the area will be cordoned off with flagging and/or fences/barricades. Assure that field activities do not present a hazard to traffic movement and do not generate dust emissions that may migrate offsite.	
Task-Specific Decontamination Procedures:	
If accidentally exposed to chemicals or potential asbestos-containing material, flush skin with water for 5 minutes. If chemicals get in eyes, flush with eyewash, then water, and seek medical attention.	
Task-Specific Contact Telephone Numbers:	
1. Steve Nicholls (406) 782-5220	
Task-Specific Coordination Requirements with BNSF and MRL:	
Schedule work plan activities with BNSF and MRL prior to beginning activity.	
Task-Specific Requirements from the Facility-Wide HASP:	
Follow all applicable requirements of <i>Facility-Wide Health and Safety Plan (Revision No. 3)</i> .	

Task-Specific Deviations from Facility-Wide HASP:

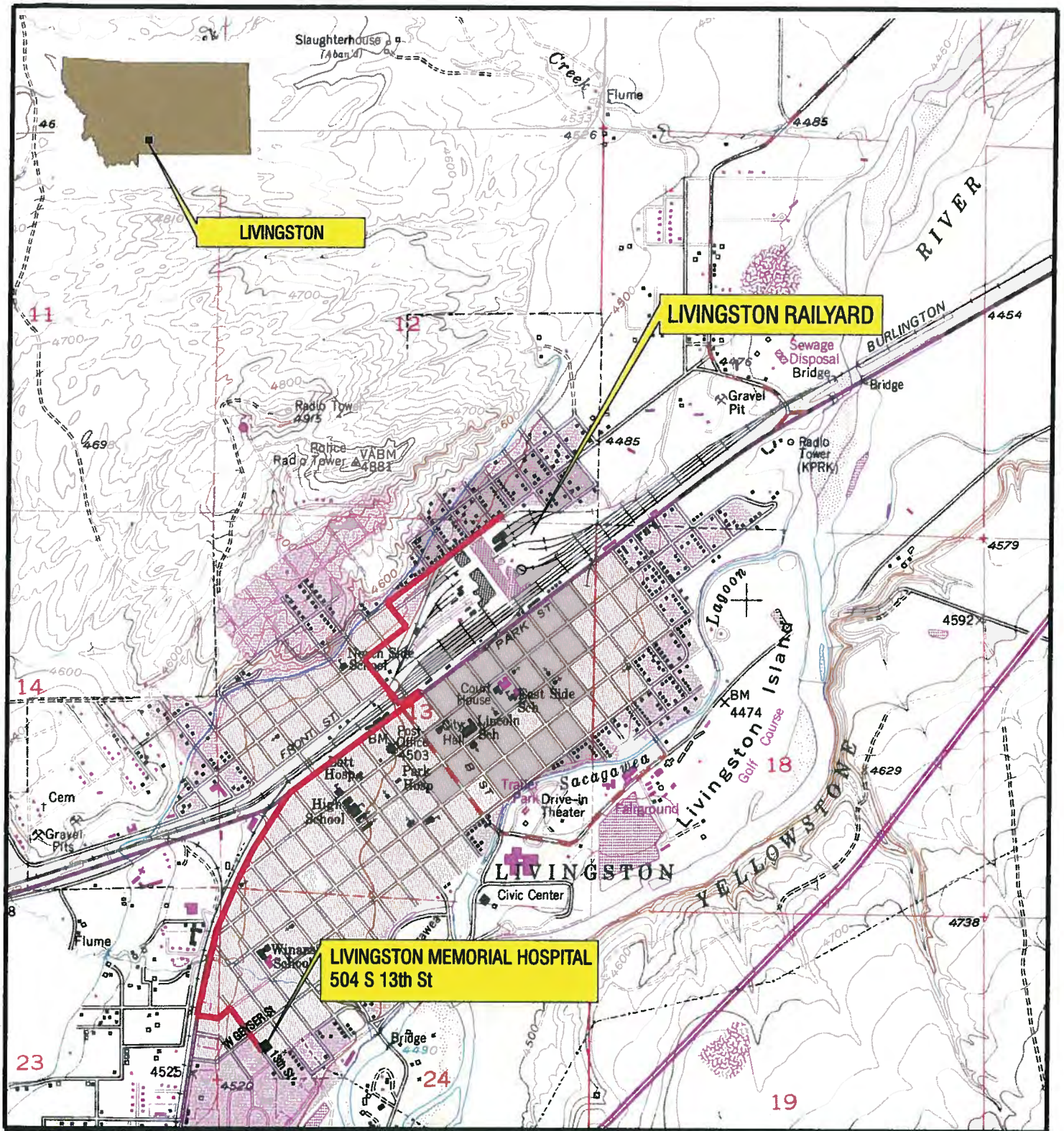
None

Emergency Response (Contingency) Plan:

See *Facility-Wide Health and Safety Plan (Revision No. 3)* (Section 7.0)

ATTACHMENTS

Attachment 1 – Route to Hospital



Directions to Hospital

- Proceed Southwest on E. Gallatin St.
- Turn LEFT onto N. Main St.
- Turn RIGHT onto Park St. (US-89)
- Turn LEFT onto S. 13th St.
- Hospital is on LEFT at 504 S. 13th St.

Kennedy/Jenks Consultants

BURLINGTON NORTHERN LIVINGSTON SHOP
COMPLEX-LIVINGSTON, MT

**HOSPITAL LOCATION AND
ROUTE MAP**

3/05

059621.16/HASP/P05SK003

FIGURE 3

Appendix D

Analysis of Environmental Requirements, Criteria, and Limitations

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
FEDERAL AND STATE CONTAMINANT SPECIFIC ERCLS		
Surface and Groundwater Quality Standards (Applicable)		
<p>Section 75-5-605, Montana Code Annotated (MCA)</p> <p>Section 75-5-303, MCA</p>	<p><u>Causing of Pollution</u> Section 75-5-605 of the Montana Water Quality Act prohibits the causing of pollution of any state waters. Section 75-5-103(21)(a)(i) defines pollution as contamination or other alteration of physical, chemical, or biological properties of state waters which exceeds that permitted by the water quality standards.</p> <p><u>Placement of Wastes</u> Section 75-5-605, MCA states that it is unlawful to place or cause to be placed any wastes where they will cause pollution of any state waters. Any permitted placement of waste is not placement if the agency's permitting authority contains provisions for review of the placement of materials to ensure it will not cause pollution to state waters.</p> <p><u>Nondegradation</u> Section 75-5-303, MCA states that existing uses of state waters and the level of water quality necessary to protect the uses must be maintained and protected, with certain limited exceptions.</p>	<p>Activities proposed in the work plan will not impact surface water. To ensure the aquifer is not degraded/polluted, IDW generated during field activities associated with this task will be managed according to the hazardous and solid waste procedures specified in the Final Facility-Wide Sampling and Analysis Plan and the SAP Addendum (Facility-Wide SAP) (see in particular, Section 8.4 and Appendices 1 and 2). All development and decontamination water will be treated to the groundwater cleanup levels presented in the ROD and will meet all applicable permit requirements as specified in Petroleum Cleanup General Permit MTG7900013 before discharge to the Yellowstone River or will be disposed of according to the Facility-Wide SAP. This task is being conducted to evaluate the concentrations of volatile organic compounds (VOCs) in vadose zone and saturated alluvial zone soils. Soil results from this task will be compared to the cleanup levels presented in the Record of Decision (ROD) (DEQ 2001). Activities proposed in the this Work Plan will not degrade water quality.</p> <p>Investigation-derived waste (IDW) generated during field activities associated with this task will be managed as outlined in Section 8.4 of the Facility-Wide Sampling and Analysis Plan (Facility-Wide SAP). Management of IDW will not cause pollution of any state waters.</p> <p>To ensure the aquifer is not degraded/polluted, IDW generated during field activities associated with this task will be managed as outlined in the Facility-Wide SAP. This task is being conducted to evaluate the concentrations of volatile organic compounds (VOCs) in vadose zone and saturated alluvial zone soils. Soil results from this task will be compared to the cleanup levels presented in the Record of Decision (ROD) (DEQ 2001). Soil that that contains contamination that exceeds the relevant ROD cleanup levels will be disposed of according to the hazardous and solid waste procedures specified in the Facility-Wide SAP. All development and decontamination water will be treated to the groundwater cleanup levels presented in the ROD and will meet all applicable permit requirements as specified in Petroleum Cleanup General Permit MTG7900013 before discharge to the Yellowstone River or will be disposed of according to the Facility-Wide SAP. Activities proposed in the this Work Plan will not degrade water quality.</p>
Groundwater Quality Standards		
<p>40 Code of Federal Regulations (CFR) 141</p> <p>40 CFR 143.3</p>	<p><u>Maximum Contaminant Levels and Maximum Contaminant Level Goals (Well-Suited)</u> Because the aquifer affected by the site is currently and has been used as a drinking water source, the MCLs and non-zero MCLGs specified in 40 CFR Part 141 (Primary Drinking Water Standards) are well-suited requirements which are ultimately to be attained by the remedy for the site¹. Because many of the MCLs are equivalent with the State groundwater standards, the Primary Drinking Water Standards are listed below with the State groundwater standards.</p> <p><u>Secondary Maximum Contaminant Levels (Well-Suited)</u> Because the aquifer affected by the site is currently and has been used as a drinking water source, the Secondary Maximum Contaminant Levels (SMCLs) specified in 40 CFR Part 143.3 are well-suited requirements which are ultimately to be attained by the remedy for the site. 40 CFR 143.3 contains standards for color, odor (3 threshold odor number) and corrosivity which are well-suited to the remedial action.</p>	<p>this task is being conducted to identify the presence, if any, and concentrations of VOCs in the vadose zone and saturated alluvial soils. Groundwater results from this task will be compared to the groundwater cleanup levels presented in the ROD (DEQ 2001). This task is being conducted to evaluate the concentrations of volatile organic compounds (VOCs) in vadose zone and saturated alluvial zone soils. Soil results from this task will be compared to the cleanup levels presented in the Record of Decision (ROD) (DEQ 2001). Soil that contains contamination that exceeds the relevant ROD cleanup levels will be disposed of according to the hazardous and solid waste procedures specified in the Facility-Wide SAP. All development and decontamination water will be treated to the groundwater cleanup levels presented in the ROD and will meet all applicable permit requirements as specified in Petroleum Cleanup General Permit MTG7900013 before discharge to the Yellowstone River or will be disposed of according to the Facility-Wide SAP. Activities proposed in the this Work Plan will not degrade water quality.</p>

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
Surface Water Quality Standards (Applicable)		
Montana Water Quality Act, Section 75-5-101, et seq., MCA	The Montana Water Quality Act, Sections 75-5-101 et seq., establishes requirements for restoring and maintaining the quality of surface and ground waters and the federal Clean Water Act, 33 U.S.C. Sections 1251 et seq., establishes requirements for restoring and maintaining the quality of surface waters. Under these Acts the state has authority to adopt water quality standards designed to protect beneficial uses of each water body and to designate uses for each water body. Montana's regulations classify state waters according to quality, place restrictions on the discharge of pollutants to state waters and prohibit the degradation of state waters.	To ensure state waters are not degraded/polluted, IDW generated during field activities associated with this task will be managed as outlined in the Facility-Wide SAP. Activities proposed in the work plan do not include any purging of groundwater. Activities proposed in this work plan will not impact surface water runoff at the Facility.
Federal Clean Water Act, 33 U.S.C. §§ 1251, et seq.		
ARM 17.30.611	ARM 17.30.611(1) (Applicable) provides that the waters of the Yellowstone River drainage upstream of the Laurel water supply intake, which includes the Livingston area, are classified "B-1" for water use.	
ARM 17.30.623	ARM 17.30.623 provides that concentrations of carcinogenic, bioconcentrating, toxic or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards set forth in department Circular WQB-7.	
WQB-7 standards	WQB-7 provides that "For surface waters the Standard is the more restrictive of either the Aquatic Life Standard or the Human Health Standard." For the primary Contaminants of Concern the Circular WQB-7 standards are the same as listed above in groundwater.	
ARM 17.30.623	The B-1 classification standards at ARM 17.30.623 also include the following criteria: 1) Dissolved oxygen concentration must not be reduced below the levels given in department Circular WQB-7; 2) Hydrogen ion concentration (pH) must be maintained within the range of 6.5 to 9.5; 3) the maximum allowable increase above naturally occurring turbidity is 5 nephelometric turbidity units; 4) Temperature increases must be kept within prescribed limits; 5) No increase are allowed above naturally occurring concentrations of sediment, settleable solids, oils, floating solids, which will or is likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish or other wildlife. 6) True color must be kept within specified limits.	
ARM 17.30.637	ARM 17.30.637 which prohibits discharges containing substances that will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; (e) create conditions which produce undesirable aquatic life.	
ARM 17.30.705	ARM 17.30.705 provides that for any surface water, existing and anticipated uses and the water quality necessary to protect these uses must be maintained and protected unless degradation is allowed under the nondegradation rules at ARM 17.30.708.	
Water Quality Act, Title 17, Chapter 30, Sub-Chapters 6 and 13 and ARM 17.30.1332	<u>Stormwater Runoff (Applicable)</u> Pursuant to authority under the Water Quality Act, Title 17, Chapter 30, Sub-Chapter 6, and Title 17, Chapter 30, Sub-Chapter 13, including ARM 17.30.1332, the Water Quality Division issues general stormwater permits for certain activities. For construction activities, the following permit must be obtained: General Discharge Permit for Storm Water Associated with Construction Activity, Permit No. MTR100000 (May 19, 1997). Generally, the permits require the permittee to implement Best Management Practices (BMP) and to take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment. However, if there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with the activity, an individual MPDES permit or alternative general permit may be required.	Activities proposed in the this task work plan will not impact surface water runoff at the Facility.

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
Ambient Air Quality Standards (Applicable)		
<p>40 CFR 50.12 and ARM 17.8.222</p> <p>40 CFR 50.9 and ARM 17.8.213 40 CFR 50.10</p> <p>ARM 17.8.220</p>	<p>The following standards are applicable at the site⁴:</p> <p>40 CFR 50.12 and ARM 17.8.222. Ambient air quality standard for lead. Lead concentrations in the ambient air shall not exceed the following 90-day average: 1.5 micrograms lead per cubic meter of air.</p> <p>40 CFR 50.9 and ARM 17.8.213. Ambient air quality standard for ozone. No person shall cause or contribute to concentrations of ozone in the ambient air exceeding: 0.10 ppm 1-hour average (0.12 ppm federal standard). 40 CFR 50.10 establishes a daily maximum 8-hour average 0.08 parts per million (ppm).</p> <p>ARM 17.8.220. Ambient air quality standard for settled particulate matter. Particulate matter concentrations in the ambient air shall not exceed the following 30-day average: 10 grams per square meter.</p>	<p>Although particulates may be generated during well installation, activities proposed in the this task are not expected to result in exceedances of ambient air quality standards. <u>Borehole installation will include wetting and other best management practices related to fugitive dust control. Remedial actions will be halted if significant dust is generated and will not resume until adequate dust control measures are in place. These dust control measures will ensure that ambient air standards will not be exceeded during the proposed remedial action.</u></p>
<p>40 CFR 50.6 and ARM 17.8.223</p> <p>40 CFR 50.8 and ARM 17.8.212</p>	<p>40 CFR 50.6 and ARM 17.8.223. Ambient air quality standards for PM-10. PM-10 concentrations in the ambient air shall not exceed the following standards: 150 micrograms/cubic meter of air, 24-hour average; and 50 micrograms/cubic meter of air, expected annual average.</p> <p>40 CFR 50.8 and ARM 17.8.212. Ambient air quality standards for carbon monoxide. Carbon monoxide concentrations in the ambient air shall not exceed the following standards: 9 ppm 8-hour average; and 23 ppm for a 1-hour average (35 ppm for federal).</p>	<p>Although particulates may be generated during well installation, activities proposed in the this task are not expected to result in exceedances of ambient air quality standards. <u>Borehole installation will include wetting and other best management practices, as described above.</u></p>
Emission Standards (Applicable)		
<p>Sections 75-2-101, et seq., MCA,</p> <p>ARM 17.8.304</p> <p>ARM 17.8.308</p> <p>ARM 17.8.315</p> <p>ARM 17.8.604</p> <p>ARM 17.8.705</p> <p>ARM 17.8.715</p>	<p>Montana has promulgated standards to regulate emissions of certain contaminants into the air. The state emission standards are enforceable under the Montana Clean Air Act, Sections 75-2-101 et seq., MCA.</p> <p>ARM 17.8.304. Visible Air Contaminants. No source may discharge emissions into the atmosphere that exhibit an opacity of 20 percent or greater, averaged over six consecutive minutes. This standard is limited to point sources, but excludes wood waste burners, incinerators, and motor vehicles.</p> <p>ARM 17.8.308. Airborne Particulate Matter. Emissions of airborne particulate matter from any stationary source shall not exhibit an opacity of 20 percent or greater, averaged over six consecutive minutes. This standard applies to the production, handling, transportation, or storage of any material; to the use of streets, roads, or parking lots; and to construction or demolition projects.</p> <p>ARM 17.8.315. Odors. If a business or other activity will create odors, those odors must be controlled, and no business or activity may cause a public nuisance.</p> <p>ARM 17.8.604. Prohibited open burning. Open burning of numerous specific materials, including but not limited to oil and petroleum products and hazardous wastes, is prohibited.</p> <p>ARM 17.8.705 requires that permits be obtained for the construction, installation, alteration, or use of specified air contaminant sources. All air permits required for remedial actions must be obtained.</p> <p>ARM 17.8.715 requires sources for which air quality permits are required to use best available control technology (BACT) or to meet the lowest achievable emission rate (LAER), as applicable.</p>	<p>Although particulates may be generated during well installation, activities proposed in the this task are not expected to result in exceedances of ambient air quality standards. <u>Borehole installation will include wetting and other best management practices, as described above.</u></p> <p>Activities proposed in the this task work plan will not generate odors. No open burning will be conducted during implementation of this task.</p> <p>Activities proposed in the this task work plan do not require air permits.</p>

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
FEDERAL LOCATION SPECIFIC ERCLS		
Criteria Classification of Solid Waste Disposal Facilities and Practices (Applicable and Well-Suited)		
40 CFR 257	<p>Under the selected remedy, no solid or hazardous waste (other than media treated to cleanup levels) may be disposed on-site. The standards therefore are pertinent to the cinder pile (well-suited) and placement of ex situ soils treated to cleanup levels (applicable) and post-jurisdictional wastes (applicable).</p> <p>The criteria contained in 40 CFR Part 257, establish standards with which solid waste disposal must comply to avoid possible adverse effects on health or the environment. 40 CFR Part 257 includes the following standards: Section 257.3-1(a) requires that facilities or practices in the floodplain not result in the washout of solid waste so as to pose a hazard to human life, wildlife, or land or water resources. Section 257.3-2 provides for the protection of threatened or endangered species. Section 257.3-3 provides that a facility shall not cause the discharge of pollutants into waters of the United States. Section 257.3-4 states that a facility or practice shall not contaminate underground drinking water.</p>	<p>IDW (i.e., soil, water) will be generated during implementation of this task. Depending on the constituents and concentrations present and upon approval from the Montana Department of Environmental Quality (DEQ), this soil may be landspread at the Livingston railyard, or treated, if feasible, and landspread at the Livingston railyard. Alternatively, non-hazardous IDW will be disposed off of the Facility at an appropriate permitted disposal facility. See the Facility-Wide SAP for additional information on how non-hazardous IDW will be managed to comply with these ERCLs. Landspreading of soil, if approved by DEQ, will not occur in areas of a floodplain, will not be conducted in a manner to cause discharge of pollutants into water, and will not be conducted in a manner that contaminates underground drinking water sources or impacts endangered or threatened species. Other IDW or solid waste generated during implementation of this task will be disposed off of the Facility at an appropriate permitted disposal facility.</p>
The Endangered Species Act (Well-Suited)		
<p>16 U.S.C. §§ 1531 – 1544, 50 CFR Part 402, 40 CFR 6.302(h), 40 CFR 257.3-2</p> <p>Sections 87-5-106, -107, -111, and -201, MCA</p> <p>ARM 12.5.201</p>	<p>This statute and implementing regulations (16 U.S.C. § 1531 et seq., 50 CFR Part 402, 40 CFR 6.302(h), and 40 CFR 257.3-2) require that any federal activity or federally authorized activity may not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify a critical habitat. Compliance with this requirement involves consultation with the U.S. Fish and Wildlife Service (USFWS) and a determination of whether there are listed or proposed species or critical habitats present at the Site, and, if so, whether any proposed activities will impact such wildlife or habitat. No endangered or threatened species was identified onsite although the Yellowstone Trout is treated as a species of special concern by the State. Any action affecting federal or State endangered or threatened species must comply with all listed requirements.</p> <p>Sections 87-5-106, 107, and 111, MCA (Applicable): Endangered species should be protected in order to maintain and to the extent possible enhance their numbers. These sections list endangered species, prohibited acts and penalties. See also, §§ 87-5-106 and 87-5-201, MCA, (Applicable) concerning protection of wild birds, nests and eggs.</p> <p>ARM 12.5.201 (Applicable). Certain activities are prohibited with respect to specified endangered species.</p>	<p>Activities proposed in the this task work plan will not impact endangered species. According to the ROD, no endangered species or threatened species were identified at the Facility, although the Yellowstone Trout is treated as a species of special concern by the State.</p>
Migratory Bird Treaty Act (Well-Suited)		
16 U.S.C. §§ 703, et seq.	This requirement (16 U.S.C. § 703 et seq.) establishes a federal responsibility for the protection of the international migratory bird resource and requires continued consultation with the USFWS during remedial design and remedial action to ensure that the cleanup of the site does not unnecessarily impact migratory birds.	Activities proposed in the this task work plan will not impact migratory birds. Migratory birds may be present near the Facility. However, the Livingston railyard does not provide the majority of habitat for these species relative to the surrounding area, and no features exist that are particularly attractive to these species.
Bald Eagle Protection Act (Well-Suited)		
16 U.S.C. §§ 668, et seq.	This requirement (16 U.S.C. § 668 et seq.) establishes a federal responsibility for protection of bald and golden eagles, and requires continued consultation with the USFWS during remedial design and remedial action to ensure that any cleanup of the site does not unnecessarily adversely affect the bald and golden eagle.	Activities proposed in the this task work plan will not impact bald eagles. Bald eagles may be present near the Facility. However, the Livingston railyard does not provide the majority of habitat for these species relative to the surrounding area, and no features exist that are particularly attractive to these species.
Historic Sites, Buildings, Objects, and Antiquities Act (Well-Suited)		
16 U.S.C. 461, et seq.	These requirements, found at 16 U.S.C. 461 et seq., provide that, in conducting an environmental review of a proposed action, the responsible official shall consider the existence and location of natural landmarks using information provided by the National Park Service pursuant to 36 CFR 62.6(d) to avoid undesirable impacts upon such landmarks. No historic sites were identified.	Activities proposed in the this task work plan will not impact historic sites. According to the ROD, no historic sites were identified at the Livingston railyard.
Fish and Wildlife Coordination Act (Well-Suited)		
16 U.S.C. 661, et seq. and 40 CFR 6.302(g)	These standards are found at 16 U.S.C. § 661 et seq. and 40 CFR 6.302(g) and require that federally funded or authorized projects ensure that any modification of any stream or other water body affected by a funded or authorized action provide for adequate protection of fish and wildlife resources.	Activities proposed in the this task work plan do not involve the modification of any stream or other water body.
Floodplain Management Order (Well-Suited)		
40 CFR Part 6, Appendix A, Executive Order No. 11,988	This requirement (40 CFR Part 6, Appendix A, Executive Order No. 11,988) mandates that federally funded or authorized actions within the 100 year floodplain avoid, to the maximum extent possible, adverse impacts associated with development of a floodplain.	Activities proposed in this task work plan do not involve locating any wells or borings in the floodplain or floodway. Soil boring or excavation activities are not anticipated to impact the floodplain or floodway.

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
Protection of Wetlands Order (Well-Suited)		
40 CFR Part 6, Appendix A, Executive Order No. 11,990 Section 404(b)(1), 33 U.S.C. Section 1344(b)(1)	This requirement (40 CFR Part 6, Appendix A, Executive Order No. 11,990) mandates that federal agencies and potentially responsible parties avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists. Section 404(b)(1), 33 U.S.C. § 1344(b)(1), also prohibits the discharge of dredged or fill material into waters of the United States. Together, these requirements create a "no net loss" of wetlands standard.	According to Montana's Natural Resource Information System (NRIS), no wetlands have been identified in the Livingston area. Activities proposed in the this task work plan will not impact wetlands.
STATE LOCATION SPECIFIC ERCLS		
Solid Waste Management Regulations (Applicable and Well-Suited)		
Solid Waste Management Act, Sections 75-10-201 et seq., MCA ARM 17.50.505(1)	Regulations promulgated under the Solid Waste Management Act, Sections 75-10-201 et seq., MCA, specify requirements that apply to the location of any solid waste management facility. Under the selected remedy, no solid or hazardous waste (other than media treated to cleanup levels) may be disposed on-site. The standards therefore are pertinent to the cinder pile (well-suited) and placement of ex situ soils treated to cleanup levels (applicable) and post-jurisdictional wastes (applicable). Under ARM 17.50.505(1), a facility for the treatment, storage or disposal of solid wastes: (a) must be located where a sufficient acreage of suitable land is available for solid waste management; (b) may not be located in a 100-year floodplain; (c) may be located only in areas which will prevent the pollution of ground and surface waters and public and private water supply systems; (d) must be located to allow for reclamation and reuse of the land; (e) drainage structures must be installed where necessary to prevent surface runoff from entering waste management areas; and (f) where underlying geological formations contain rock fractures or fissures which may lead to pollution of the ground water or areas in which springs exist that are hydraulically connected to a proposed disposal facility, only Class III disposal facilities may be approved.	Non-hazardous IDW <u>such as personal protective equipment (PPE) and IDW (i.e., soil, water) that has determined to be nonhazardous through analytical testing and receipt of a "no longer contained-in" determination from DEQ, if applicable.</u> generated during implementation of this task will be contained in 55-gallon drums or other appropriate containers and temporarily stored in a centralized storage area pending characterization and final disposition. If investigation-derived soil or water cannot be landspread at the Livingston railyard, it will be disposed off of the Facility along with other non-hazardous IDW at an appropriate permitted disposal facility. Any other solid waste (i.e., plastic wrapping, cardboard, non-indigenous waste, etc.) will be contained in a plastic bag (if necessary) [double-bagged (if necessary)], and placed in a garbage can for collection and appropriate disposal as solid waste. Activities proposed in the this task work plan do not involve the cinder pile or propose treatment of soil. If treatment of soil is proposed, a SAP addendum containing a treatment plan will be submitted to DEQ as discussed in Section 8.4.2 of the Facility-Wide SAP. See Section 8.4 of the Facility-Wide SAP for additional information regarding the management of IDW. IDW (i.e., soil, water) generated during implementation of this task will be contained in 55-gallon drums or other appropriate containers and stored inside/near the Forest Products Building and/or the Former C&P Packing Building (see Section 8.4.4.1 of Facility-Wide SAP). The Forest Products Building and/or Former C&P Packing Building and surrounding areas represent sufficient acreage for IDW management. These buildings are not located in the floodplain <u>or floodway</u> . IDW will be stored in appropriate containers to prevent pollution of groundwater, surface water, and public and private water supply systems. See Section 8.4 of the Facility-Wide SAP for additional information regarding the management of IDW.
Floodplain and Floodway Management Act and Regulations (Applicable)		
Section 76-5-401, MCA and ARM 36.15.601 Section 76-5-402, MCA and ARM 36.15.701 ARM 36.15.602(6) ARM 36.15.602(5), 36.15.605, and 36.15.703 Section 76-5-402, MCA Section 76-5-406, MCA and ARM 36.15.216	A portion of the site is in a designated floodplain. The following standards are included here to indicate the restrictions on any related activities that might occur in or affect the floodway or floodplain. Residential, certain agricultural, industrial-commercial, recreational and other uses are permissible within the designated floodway, provided they do not require structures other than portable structures, fill or permanent storage of materials or equipment. Section 76-5-401, MCA; ARM 36.15.601. In the flood fringe (i.e., within the floodplain but outside the floodway), residential, commercial, industrial, and other structures may be permitted subject to certain conditions relating to placement of fill, roads, and floodproofing. Section 76-5-402, MCA; ARM 36.15.701. Domestic water supply wells may be permitted, even within the floodway, provided the well casing and well meets certain conditions. ARM 36.15.602(6). Solid and hazardous waste disposal and storage of toxic, flammable, hazardous, or explosive materials are prohibited anywhere in floodways or floodplains. ARM 36.15.602(5), 36.15.605, and 36.15.703. The following are prohibited in a floodway: buildings for living purposes or place of assembly or permanent use by human beings; any structure or excavation that will cause water to be diverted from the established floodway, cause erosion, obstruct the natural flow of water, or reduce the carrying capacity of the floodway; and the construction or permanent storage of an object subject to flotation or movement during flood level periods. Section 76-5-402, MCA. Section 76-5-406, MCA and ARM 36.15.216 contain substantive factors which address obstruction or use within the floodway or floodplain.	The proposed area(s) where the borings and test pits are to be located are not located in the floodway or floodplain. Therefore, the activities proposed in the manway investigation work plan will not impact a floodway or floodplain.
ARM 36.15.604, ARM 36.15.602(1), and ARM 36.15.603	Further conditions or restrictions that generally apply to specific activities within the floodway or floodplain can be found at ARM 36.15.604 (increase in upstream elevation or significantly increase flood velocities); ARM 36.15.602(1) (excavation of material from pits or pools); ARM 36.15.603 (water diversions or changes in place of diversion).	

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
ARM 36.15.701(3)(c) ARM 36.15.701(3)(d) ARM 36.15.702(2) ARM 36.15.606 ARM 36.15.901	ARM 36.15.701(3)(c) requires that roads, streets, highways and rail lines must be designed to minimize increases in flood heights. Structures and facilities for liquid or solid waste treatment and disposal must be floodproofed to ensure that no pollutants enter flood waters and may be allowed and approved only in accordance with DEQ regulations, which include certain additional prohibitions on such disposal. ARM 36.15.701(3)(d). Standards applied to residential, commercial or industrial structures are found at ARM 36.15.702(2). Flood control works are subject to ARM 36.15.606, which requires compliance with safety standards for levees, floodwalls, and riprap. ARM 36.15.901 requires electrical systems to be flood-proofed.	
FEDERAL AND STATE ACTION SPECIFIC ERCLS		
Federal Hazardous Waste Management Regulations (Applicable)		
42 U.S.C. §§ 6901 et seq., and Montana Hazardous Waste Act, Sections 75-10-401 et seq., MCA	The Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Sections 6901 et seq., and the Montana Hazardous Waste Act, Sections 75-10-401 et seq., MCA, and regulations under these acts establish a regulatory structure for the generation, transportation, treatment, storage and disposal of hazardous wastes. These requirements are applicable to substances and actions at the site which involve the active management of hazardous wastes. Burlington Northern operated the site and generated waste through 1986-7. Therefore, in certain instances, disposal was not pre-jurisdictional and the hazardous waste requirements are applicable now. However, DEQ does not have the documentation showing the dates of individual discharges, and therefore has, for purposes of this ROD, made a determination to treat all historic waste and media containing waste as pre-jurisdictional (in accord with the NCP and EPA guidance). Therefore, under this ROD, the historic waste which is characteristic or listed becomes hazardous upon excavation (generation).	These activities are being conducted in the area containing F-listed constituents. IDW generated during the pilot test will be suspected of containing F-listed constituents and will be managed as a hazardous waste unless analytical testing shows otherwise (i.e., no detections of PCE, or detections of PCE below the relevant ROD cleanup levels and receipt of a "no longer contained-in" determination from DEQ under RCRA). Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed as outlined in the Facility-Wide SAP, in accordance with the applicable requirements of these ERCLs. While DEQ has the authority to waive non-substantive permit requirements for remedial actions conducted entirely at the Facility, that authority does not extend to permitted activities such as transporting and disposing of hazardous waste off of the Facility. DEQ has determined that a hazardous waste transporter is not required to transport hazardous waste from a work area to the centralized storage area, provided transportation remains within the Facility. If hazardous waste needs to be transported outside the Facility, a hazardous waste transporter will be used and the hazardous waste will be manifested, labelled and containerized. Any hazardous IDW generated during implementation of this task will be contained in 55-gallon drums or tank(s) and stored inside/near the Forest Products Building and/or the Former C&P Packing Building (see Section 8.4.4 of Facility-Wide SAP). Figures 4, 5, and 6 in the Facility-Wide SAP depict how IDW generated during implementation of this task will be disposed of in accordance with these ERCLs.
		Environmental samples containing RCRA-regulated constituents submitted to the analytical laboratory are exempt from RCRA; however, they become subject to RCRA again when they are disposed of by the analytical laboratory. Analytical laboratory will dispose of environmental samples in accordance with state and federal regulations.

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
Identification and Listing of Hazardous Waste		
<p>40 CFR 261 ARM 17.54.501-502</p> <p>ARM 17.53.111 and 112, MCA</p>	<p>Wastes may be designated as hazardous by either of two methods: listing or demonstration of a hazardous characteristic. Listed wastes are the specific types of wastes determined by EPA to be hazardous as identified in 40 CFR Part 261, Subpart D (40 CFR 261.30 - 261.33). Listed wastes are designated hazardous by virtue of their origin or source, and must be managed as hazardous wastes regardless of the concentration of hazardous constituents. Characteristic wastes are those that by virtue of concentrations of hazardous constituents demonstrate the characteristic of ignitability, corrosivity, reactivity or toxicity, as described at 40 CFR Part 261, Subpart C.</p> <p>Certain of the wastes at the site demonstrate the characteristic of toxicity, and are therefore characteristic hazardous wastes upon excavation. The site also contains F001 and F002 which are listed hazardous wastes for chlorinated solvents. The various media and wastes at the site contaminated by the F001 and F002 wastes are also hazardous wastes pursuant to 40 CFR Part 261 upon excavation. The RCRA requirements specified below are applicable requirements for the treatment, storage and disposal of these wastes. See 40 CFR 261.31 (Hazardous Waste Numbers F001 and F002) and ARM 17.54.501. These ERCLs apply to remedial activities; on-going operations must comply with State and federal requirements and permits.</p> <p>EPA has advised EPA Regions and States that conservative, health-based levels derived from direct exposure pathways would clearly be acceptable as "contained-in" levels. [See memorandum from Sylvia K. Lowrance to Jeff Zelikson, Region IX, (January 24, 1989)]. EPA and many States specify conservative, risk-based levels calculated with standard conservative exposure assumptions (usually based on unrestricted access), or site-specific risk assessments. 61 FR at 18795 (April 29, 1996); 63 FR 28556 (May 26, 1998) [Part I of II]. For the BN Livingston Shop Complex, soils treated to below cleanup levels will be allowed to return to the site (from, for example, the electric shop) to an approved location in compliance with RCRA.</p> <p>For media which contain hazardous waste, all standards are applicable except for disposal requirements for "contained-out" soils. For all non-media wastes, the standards are applicable. However, no on-site disposal of hazardous waste is allowed under the selected remedy. Therefore, all hazardous wastes, including all media not treated to cleanup levels must be disposed off-site at a regulated subtitle C facility. These standards specifically apply to free product removed from within the solvent plume. For free product removed from outside the solvent plume 40 CFR Part 279 is applicable.</p> <p>Because of the presence of listed and characteristic hazardous waste, the permit requirements specified in ARM 17.53.112 are applicable. However, DEQ is exempting remedial actions involving hazardous waste from RCRA permit requirements pursuant to 75-10-721(3), MCA (1993) as long as substantive requirements are met. This does not, however, affect the requirement to comply with ARM 17.53.111, Registration and EPA Identification Numbers for Generators and Transporters.</p> <p>Workplans will require detailed information on compliance with all procedural and substantive standards (as well as all ERCLs). Set out below are the hazardous waste requirements that are applicable for the types of waste management units or the waste management practices anticipated in the remedial actions at the site.</p>	<p>These activities are being conducted in the area containing F-listed constituents, IDW generated during the work will be suspected of containing F-listed constituents and will be managed as a hazardous waste unless analytical testing shows otherwise (i.e., no detections of PCE, or detections of PCE below the relevant ROD cleanup levels, and receipt of a "no longer contained-in" determination from DEQ under RCRA). IDW (i.e., soil, water) generated during implementation of this task will be designated hazardous or non-hazardous based on analytical testing and will be managed accordingly as outlined in the Facility-Wide SAP in accordance with these ERCLs. Any IDW that contains a listed waste will be managed as a hazardous waste until BNSF seeks and obtains a "no longer contained in" determination from DEQ, as appropriate.</p> <p>BNSF has obtained a hazardous waste identification number for the Livingston railyard (EPA ID No. MTT310010087).</p>
Standards for Transporters of Hazardous Waste		
<p>40 CFR Part 263</p>	<p>The RCRA regulations at 40 CFR Part 263, establish standards that apply to transporters of hazardous waste. These standards include requirements for immediate action for hazardous waste discharges. These standards are applicable for any on-site transportation. These standards are independently applicable (see Other Laws section) for any off-site transportation.</p>	<p>Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed/transported in accordance Section 8.4 of the Facility-Wide SAP. DEQ has determined that a hazardous waste transporter is not required to transport hazardous waste from a work area to the centralized storage area, provided transportation remains within the Facility. If hazardous waste needs to be transported outside the Facility, a hazardous waste transporter will be used and the hazardous waste will be manifested, labelled and containerized. Hazardous waste that is disposed off of the Facility at a permitted hazardous waste (Subtitle C) disposal facility will be transported by a hazardous waste transporter and will be manifested.</p>

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities		
40 CFR 264, Subpart B	<p><u>General Facility Standards</u> The regulations at 40 CFR 264, Subpart B, establish general facility requirements. These standards include requirements for general waste analysis, security and location standards.</p>	Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed in accordance with the Facility-Wide SAP.
40 CFR 264, Subpart F	<p><u>Releases from Solid Waste Management Units</u> The regulations at 40 CFR 264, Subpart F, establish requirements for groundwater protection for RCRA-regulated solid waste management units (i.e., waste piles, surface impoundments, land treatment units, and landfills). The regulations at Subpart F establish monitoring requirements for RCRA-regulated solid waste management units (i.e., waste piles, surface impoundments, land treatment units, and landfills). Subpart F provides for three general types of groundwater monitoring: detection monitoring (40 CFR 264.98); compliance monitoring (40 CFR 264.99); and corrective action monitoring (40 CFR 264.100). Monitoring wells must be cased according to 264.97(c). Monitoring is required during the active life of a hazardous waste management unit. If hazardous waste remains, monitoring is required for a period necessary to protect human health and the environment.</p>	IDW (i.e., soil, water) generated during implementation of this task will be appropriately containerized and stored <u>in drums, tanks, or other appropriate containers</u> , as described in Section 8.4.4 of the Facility-Wide SAP.
40 CFR Part 264, Subpart G	<p><u>Closure and Post-Closure Monitoring and Maintenance of Waste Management or Disposal Facilities</u> 40 CFR Part 264, Subpart G, establishes that hazardous waste management facilities must be closed in such a manner as to (a) minimize the need for further maintenance and (b) control, minimize or eliminate, to the extent necessary to protect public health and the environment, post-closure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff or hazardous waste decomposition products to the ground or surface waters or to the atmosphere. Requirements for facilities requiring post-closure care include the following: the facilities must undertake appropriate monitoring and maintenance actions, control public access, and control postclosure use of the property to ensure that the integrity of the final cover, liner, or containment system is not disturbed. In addition, all contaminated equipment, structures and soil must be properly disposed of or decontaminated unless exempt and free liquids must be removed or solidified, the wastes stabilized, and the waste management unit covered.</p>	IDW (i.e., soil, water) generated during implementation of this task will be either landspread at the Livingston railyard (with DEQ approval), incorporated into the final remedy (with DEQ approval), or removed from the Facility and disposed of at a permitted disposal facility (hazardous or non-hazardous, as appropriate). IDW generated during the this task SI Work Plan will not be stored in soil waste management or disposal facilities.
40 CFR Part 264, Subparts I and J 40 CFR 261.7	<p><u>Waste Containers and Tanks</u> 40 CFR Part 264, Subparts I and J apply to owners and operators of facilities that store hazardous waste in containers, and store or treat hazardous waste in tanks, respectively. These regulations are applicable to any storage or treatment in these units at the site. The related provisions of 40 CFR 261.7, residues of hazardous waste in empty containers, are also applicable.</p>	Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be contained in either 55-gallon drums or tank(s) and stored in a centralized storage area (Forest Products Building and/or Former C&P Packing Building) as outlined in Section 8.4.4 of the Facility-Wide SAP.
40 CFR Part 264, Subpart L	<p><u>Waste Piles</u> 40 CFR Part 264, Subpart L, applies to owners and operators of facilities that store or treat hazardous waste in piles. The regulations include requirements for the use of run-on and run-off control systems and collection and holding systems to prevent the release of contaminants from waste piles. These regulations are applicable to any storage in waste piles at the site.</p>	Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be stored in 55-gallons drums or tanks(s) not in waste piles or staging piles. If treatment of soil is proposed, a SAP addendum containing a treatment plan will be submitted to DEQ as discussed in Section 8.4.2 of the Facility-Wide SAP.
40 CFR 264.554	<p><u>Staging Piles</u> 40 CFR 264.554 sets forth a new storage unit called the staging pile. A staging pile must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the staging pile originated. The staging pile must be designed so as to prevent or minimize releases of hazardous wastes and hazardous constituents into the environment, and minimize or adequately control cross-media transfer, as necessary to protect human health and the environment (for example, through the use of liners, covers, run-off/run-on controls, as appropriate). The staging pile must not operate for more than two years and cannot be used for treatment.</p>	
40 CFR Part 268	<p><u>RCRA Land Disposal Restrictions</u> Since the wastes to be treated are listed and characteristic wastes, the RCRA Land Disposal Restrictions (LDRs) treatment levels set forth in 40 CFR Part 268 are applicable requirements including the treatment levels for F001 and F002 listed wastes for the disposal of hazardous wastes generated at the site. With the exception of treated soils, hazardous wastes are prohibited from disposal on-site.</p>	Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed in accordance with Section 8.4 of the Facility-Wide SAP. Figures 4, 5, and 6 in the Facility-Wide SAP depict how IDW generated during implementation of this task will be disposed of in accordance with these ERCLs. If investigation-derived soil or water is proposed for landspreading, documentation showing that concentrations are below <u>relevant ROD cleanup levels and LDR standards</u> will be included in the request to DEQ.
HWIR Media Rule (63 Fed. Reg. 65874)	<p>The HWIR Media Rule, promulgated at 63 Fed. Reg. 65874 (November 30, 1998) allows listed waste treated to levels protective of human health and the environment to be disposed on-site without triggering land ban or minimum technology requirements for these disposal requirements. Treated soils containing hazardous waste will need to meet cleanup levels to avoid triggering land ban or minimum technology requirements for these disposal requirements.</p>	

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
40 CFR 268.45	<p><u>Hazardous debris</u> Since on-site disposal of solid and hazardous wastes is prohibited at the site, any hazardous debris remaining on-site must comply with 40 CFR 268.45 prior to off-site disposal as a solid waste (all off-site disposal must also comply with LDR certification requirements, which apply to these wastes). If the debris does not fully comply with 40 CFR 268.45, it must be disposed off-site at a regulated subtitle C facility.</p>	If any hazardous debris is generated during implementation of this task, it will be managed <u>hazardous waste as</u> as outlined in the Facility-Wide SAP.
40 CFR Part 270 40 CFR Part 279	<p><u>Substantive Permit Requirements</u> 40 CFR Part 270 sets forth the hazardous waste permit program. The substantive requirements set forth in 40 CFR Part 270, Subpart C (permit conditions), including the requirement to properly operate and maintain all facilities and systems of treatment and control are applicable requirements.</p> <p><u>Used Oil</u> 40 CFR Part 279 sets forth the standards for the management of used oil. For product removed from outside the solvent plume, 40 CFR Part 279 is applicable.</p>	<p>Substantive requirements of RCRA will be met as described in Section 8.4 of the Facility-Wide SAP, including generation, storage, and disposal.</p> <p>Activities proposed in the this task work plan will not result in the generation of used oil.</p>
State Hazardous Waste Management Regulations (Applicable)		
Sections 75-10-401 et seq., MCA ARM 17.53.501-502 ARM 17.53.601-604 ARM 17.53.701-708 ARM 17.53.801-803 ARM 17.53.1101-1102 Section 75-10-422 MCA ARM 17.53.1101-1102	<p>The Montana Hazardous Waste Act, Sections 75-10-401 et seq., MCA, and regulations under this act establishes a regulatory structure for the generation, transportation, treatment, storage and disposal of hazardous wastes. These requirements are applicable to substances and actions at the site which involve listed and characteristic hazardous wastes.</p> <p>ARM 17.53.501-502 adopts the equivalent of RCRA regulations at 40 CFR Part 261, establishing standards for the identification and listing of hazardous wastes, including standards for recyclable materials and standards for empty containers, with certain State exceptions and additions.</p> <p>ARM 17.53.601-604, adopts the equivalent to RCRA regulations at 40 CFR Part 262, establishing standards that apply to generators of hazardous waste, including standards pertaining to the accumulation of hazardous wastes, with certain State exceptions and additions.</p> <p>ARM 17.53.701-708, adopts the equivalent to RCRA regulations at 40 CFR Part 263, establishing standards that apply to transporters of hazardous waste, with certain State exceptions and additions.</p> <p>ARM 17.53.801-803, adopts the equivalent to RCRA regulations at 40 CFR Part 264, establishing standards that apply to hazardous waste treatment, storage and disposal facilities, with certain State exceptions and additions.</p> <p>ARM 17.53.1101-1102, adopts the equivalent to RCRA regulations at 40 CFR Part 268, establishing land disposal restrictions, with certain State exceptions and additions.</p> <p>Section 75-10-422 MCA prohibits the unlawful disposal of hazardous wastes.</p> <p>ARM 17.53.1101-1102, adopts the equivalent to RCRA regulations at 40 CFR Part 270, which establish standards for permitted facilities, with certain State exceptions and additions.</p>	<p>These activities are being conducted in the area containing F-listed constituents, IDW generated during the pilot test will be suspected of containing F-listed constituents and will be managed as a hazardous waste unless analytical testing shows otherwise (i.e., no detections of PCE, or detections of PCE below the relevant ROD cleanup levels and receipt of a "no longer contained-in" determination from DEQ under RCRA). Any hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed as outlined in the Facility-Wide SAP, in accordance with the applicable requirements of these ERCLs. While DEQ has the authority to waive non-substantive permit requirements for remedial actions conducted entirely at the Facility, that authority does not extend to permitted activities such as transporting and disposing of hazardous waste off of the Facility. DEQ has determined that a hazardous waste transporter is not required to transport hazardous waste from a work area to the centralized storage area, provided transportation remains within the Facility. If hazardous waste needs to be transported outside the Facility, a hazardous waste transporter will be used and the hazardous waste will be manifested, labelled and containerized. Any hazardous IDW generated during implementation of this task will be contained in 55-gallon drums or tank(s) and stored inside/near the Forest Products Building and/or the Former C&P Packing Building (see Section 8.4.4 of Facility-Wide SAP). Figures 4, 5, and 6 in the Facility-Wide SAP depict how IDW generated during implementation of this task will be disposed of in accordance with these ERCLs.</p>
ARM 17.53.1401	ARM 17.53.1401, adopts the equivalent of RCRA regulations at 40 CFR Part 279 which set forth the standards for the management of used oil.	Activities proposed in the this task work plan will not result in the generation of used oil.
National Emission Standards for Hazardous Air Pollutants (NESHAPs)		
ARM 17.8.341 (Incorporates by reference 40 CFR Part 61) 40 CFR 61.145	<p><u>Asbestos (Well-Suited)</u> The federal Clean Air Act requires the EPA to set emission standards for hazardous air pollutants. 42 U.S.C Section 7412. Implementation and enforcement of these standards in Montana has been delegated to the State. See 40 CFR 61.04(b)(BB). Federal standards for hazardous air pollutants (NESHAPs) at 40 CFR Part 61, are incorporated by reference by ARM 17.8.341. The NESHAPs for asbestos are well-suited to the cinder pile and are discussed in the Asbestos section below; however, the solid waste requirements are the more stringent of the ERCLs that must be complied with with respect to covering of the cinder pile.</p> <p>40 CFR 61.145. (well-suited). Standard for demolition and renovation. This section contains standards for demolition or renovation of a facility. The standards are designed to reduce or eliminate asbestos emissions from such operations, and include provisions for notification regarding intended project, wetting of asbestos materials, use of exhaust systems, careful movement of asbestos materials, and presence on site of a trained asbestos removal person. This section applies to any demolition or renovation of a structure, installation, building, or waste disposal area at the site containing asbestos materials.</p>	Activities proposed in this task work plan will not result in air emissions of asbestos or vinyl chloride.
	40 CFR 61.151. (well-suited). Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations. There must either be no discharge of visible emissions from the site to the outside air, or the specified covering or treatment methods must be followed. Warning signs must be posted and prior notice must be given to EPA or the State before the waste material is excavated or disturbed.	

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
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Federal or State ERCL Citation	Description	Compliance
40 CFR Part 61, Subpart F	<p><u>Vinyl Chloride (Applicable)</u> 40 CFR Part 61, Subpart F contains the national emission standard for vinyl chloride. 40 CFR 61.64(b) requires concentrations from vinyl chloride in each exhaust gas stream from each stripper not exceed 10 ppm.</p>	
National Pollutant Discharge Elimination System (NPDES) and the Montana Pollutant Discharge Elimination System (MPDES) (Applicable)		
40 CFR Part 122, Subpart C and ARM 17.30.1342 -.1344	40 CFR Part 122, Subpart C and ARM 17.30.1342-1344 set forth the substantive requirements applicable to all MPDES and NPDES permits. Permits must be obtained for all surface and groundwater systems that are part of remedial actions, including proper operation and maintenance of all facilities and systems of treatment and control.	<p><u>To ensure state waters are not degraded/polluted, any development or decontamination water will be treated to the groundwater cleanup levels presented in the Record of Decision (ROD) (DEQ 2001) and will meet all applicable permit requirements as specified in Petroleum Cleanup General Permit MTG7900013 before discharge to the Yellowstone River.</u></p>
Technology-Based Treatment (Applicable)		
40 CFR Part 125 and ARM 17.30.1344	40 CFR Part 125 and ARM 17.30.1344 set forth criteria and standards for dischargers. Based on the source, the technology-based treatment standards include the best practicable control technology (BPT), best conventional pollutant control technology (BCT), or Best Available Technology Economically Achievable (BAT).	<p><u>To ensure state waters are not degraded/polluted, any development or decontamination water will be treated to the groundwater cleanup levels presented in the Record of Decision (ROD) (DEQ 2001) and will meet all applicable permit requirements as specified in Petroleum Cleanup General Permit MTG7900013 before discharge to the Yellowstone River.</u></p>
Underground Injection Control Program (Well-Suited)		
40 CFR 146	The Underground Injection Control Program set forth at 40 CFR 146, sets forth the standards and criteria for the injection of substances into aquifers. Wells are classified as Class I through V, depending on the location and the type of substance injected. For all classes, no owner may construct, operate or maintain an injection well in a manner that results in the contamination of an underground source of drinking water at levels that violate MCLs or otherwise adversely affect the health of persons. Each classification may also contain further specific standards, depending on the classification.	Activities proposed in the this task work plan do not involve the construction/operation of underground injection control wells.
Solid Waste Management Regulation (Applicable and Well-Suited)		
ARM 17.50.505 ARM 17.50.511 ARM 17.50.530	<p>ARM 17.50.505(2) specifies standards for solid waste management facilities, including the requirements that:</p> <ol style="list-style-type: none"> 1. Class II landfills must confine solid waste and leachate to the disposal facility. If there is the potential for leachate migration, it must be demonstrated that leachate will only migrate to underlying formations which have no hydraulic continuity with any state waters; 2. adequate separation of group II wastes from underlying or adjacent water must be provided; and 3. no new disposal units or lateral expansions may be located in wetlands. <p>ARM 17.50.505 also specifies general soil and hydrogeological requirements pertaining to the location of any solid waste management facility.</p> <p>ARM 17.50.511 sets forth general operational and maintenance and design requirements for solid waste facilities using landfilling methods. Specific operational requirements, specified in ARM 17.14.511 are run-on and run-off control systems requirements, requirements that sites be fenced to prevent unauthorized access, and prohibitions of point source and nonpoint source discharges which would violate Clean Water Act requirements.</p> <p>ARM 17.50.530 sets forth the closure requirements for landfills. Class II landfills must meet the following criteria:</p> <ol style="list-style-type: none"> 1. install a final cover that is designed to minimize infiltration and erosion. 2. design and construct the final cover system to minimize infiltration through the closed unit by the use of an infiltration layer that contains a minimum 18 inches of earthen material and has a permeability less than or equal to the permeability of any bottom liner, barrier layer, or natural subsoils or a permeability no greater than 1 X 10⁻⁵ cm/sec, whichever is less; 3. minimize erosion of the final cover by the use of a seed bed layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth and protecting the infiltration layer from frost effects and rooting damage; 4. revegetate the final cover with native plant growth within one year of placement of the final cover.⁵ 	Activities proposed in the this task work plan do not involve siting, construction, operation/maintenance, and closure of a solid waste management facility. IDW generated during implementation of this task will be managed as outlined in the Facility-Wide SAP.
ARM 17.50.531	ARM 17.50.531 sets forth post closure care requirements for Class II landfills. Post closure care must be conducted for a period sufficient to protect human health and the environment. Post closure care requires maintenance of the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cover and comply with the groundwater monitoring requirements found at ARM Title 17, chapter 14, subchapter 7.	
Transportation of Solid Waste (Applicable)		
Section 75-10-212	For solid wastes, Section 75-10-212 prohibits dumping or leaving any debris or refuse upon or within 200 yards of any highway, road, street, or alley of the State or other public property, or on privately owned property where hunting, fishing, or other recreation is permitted.	Solid waste (i.e., plastic wrapping, cardboard, non-indigenous waste, etc.) generated during implementation of this task will be contained in a plastic bag (if necessary) [double-bagged (if necessary)], and placed in a garbage can for collection and appropriate disposal as solid waste. IDW generated during implementation of Task F will be managed as outlined in Section 8.4 of the Facility Wide SAP. Solid waste generated during implementation of pilot test will be managed as outlined in Section 8.4 of the Facility Wide SAP.

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
ARM 17.50.523	ARM 17.50.523 requires that such waste must be transported in such a manner as to prevent its discharge, dumping, spilling, or leaking from the transport vehicle.	Section 6.4 of the Facility-wide OAR: Solid waste generated during implementation of prior test will be transported in a manner to prevent discharge, dumping, spilling, and leaking.
Underground Storage Tank (USTs) Regulations (Applicable)		
40 CFR Part 280, Subpart F	<p>These standards are applicable. To the extent certain UST systems were removed prior to the effective date of the regulations, diesel is found separate and distinct from an UST system, or UST regulations are not applicable, the UST requirements remain well-suited since they address situations or problems sufficiently similar to those at the site.</p> <p>40 CFR Part 280, Subpart F sets forth requirements for Release Response and Corrective Action for UST Systems Containing Petroleum or Hazardous Substances. These include initial response, initial abatement measures, site characterization, free product removal, and investigations for soil and groundwater cleanup.</p>	Activities proposed in the this task work plan do not involve USTs.
<p>40 CFR 280.64</p> <p>40 CFR Part 280, Subpart D</p> <p>40 CFR 280.43</p> <p>Title 17, Chapter 56, Sub-Chapter 4</p> <p>ARM 17.56.407</p> <p>Title 17, Chapter 56, Sub-Chapter 6</p> <p>ARM 17.56.602 - 605</p>	<p>40 CFR 280.64 provides that where investigations in connection with leaking underground storage tanks reveal the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. This regulation also requires that the free product removal be conducted in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, State and Federal regulations.</p> <p>40 CFR 280.64 provides that abatement of free product migration is a minimum objective for the design of the free product removal system provides that any flammable products must be handled in a safe and competent manner to prevent fires or explosions.</p> <p>40 CFR Part 280, Subpart D sets forth requirements for release detection.</p> <p>40 CFR 280.43 (well-suited) specifies groundwater monitoring requirements for underground storage tanks and requires continuous monitoring devices or manual methods used to detect the presence of at least 1/8 of an inch of free product on top of the groundwater in the monitoring wells.</p> <p>The Montana regulations regarding underground storage tanks include similar requirements. Title 17, Chapter 56, Sub-Chapter 4 specifies release detection.</p> <p>ARM 17.56.407 specifies groundwater monitoring requirements for underground storage tanks and requires continuous monitoring devices or manual methods used to detect the presence of at least 1/8 of an inch of free product on top of the groundwater in the monitoring wells.</p> <p>Title 17, Chapter 56, Sub-Chapter 6 specifies release response and corrective action for tanks containing petroleum or hazardous substances.</p> <p>ARM 17.56.602 through 605 requires certain mitigation measures including removal of as much of the regulated substance from the system as is necessary to prevent further release into the environment and prevention of further migration of the released substance into surrounding soil and groundwater.</p>	

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Federal or State ERCL Citation	Description	Compliance
Asbestos Regulation in Building Construction and Demolition (Well-Suited)		
Sections 50-64-101, et seq., MCA 50-64-104, MCA	Sections 50-64-101 et seq., MCA, regulate construction and demolition of structures that contain asbestos. Section 50-64-104, MCA, provides for various safeguards to prevent release of asbestos into the air. The prescribed safeguards include notification of the local fire department, posting of warning signs, wetting of surfaces, dust emission control, covering and wetting during transport, and deposition at a landfill where materials are unlikely to be disturbed and where signs warn that asbestos-containing material is buried in the landfill. The listed safeguards are well-suited to the covering of the cinder pile.	<u>Any asbestos removal will employ conventional dust suppression methods to limit potential asbestos exposure, including spraying water, direct loading into trucks, covering trucks with tarps, and having workers positioned upwind of the excavation. A Montana-Accredited Asbestos Inspector and Competent Person will oversee all asbestos cleanup. All other workers will be properly accredited by the State of Montana. The work will comply with Administrative Rules of the State of Montana (ARM) 17.74.369. All asbestos will be adequately wetted, packaged in a leak-tight container, adequately labeled, transported in a vehicle that is signed, and disposed of as soon as is practical at a Class II or Class IV landfill. All required permits for any asbestos projects, including transportation and disposal, will be obtained from DEQ's Asbestos Control Program.</u>
Well Drilling (Applicable)		
Section 85-2-505, MCA Section 85-2-516, MCA ARM 17.30.641 ARM 17.30.646 ARM 36.21.670-678 and 810	Section 85-2-505, MCA, precludes the wasting of groundwater. Any well producing waters that contaminate other waters must be plugged or capped, and wells must be constructed and maintained so as to prevent waste, contamination, or pollution of groundwater. Section 85-2-516, MCA states that within 60 days after any well is completed a well log report must be filed by the driller with the Montana Department of Natural Resources and Conservation and the appropriate county clerk and recorder. ARM 17.30.641 provides standards for sampling and analysis of water to determine quality. ARM 17.30.646 requires that bioassay tolerance concentrations be determined in a specified manner. ARM 36.21.670-678 and 810 specifies certain requirements that must be fulfilled when abandoning monitoring wells.	The monitoring wells will be constructed by a licensed monitoring well constructor, in the manner described in the Work Plan. The licensed monitoring well constructor will complete a well log report and file it with the Ground Water Information Center (GWIC) of the Montana Bureau of Mines and Geology and the Department of Natural Resources and Conservation within 60 days of construction of the monitoring wells. Bioassays will not be performed during implementation of this task. No monitoring wells will be abandoned during implementation of this task.
Reclamation Requirements (Well-Suited)		
Section 82-4-231, MCA Section 82-4-233, MCA Section 82-4-336, MCA ARM 17.24.501 ARM 17.24.519 ARM 17.24.631 ARM 17.24.633 ARM 17.24.634 ARM 17.24.638 ARM 17.24.639 ARM 17.24.640 ARM 17.24.643 - 646 ARM 17.24.701 and 702	Certain portions of the Montana Strip and Underground Mining Reclamation Act and Montana Metal Mining Act are well-suited requirements for certain revegetation and construction activities at the site. Section 82-4-231, MCA: Requires operators to reclaim and revegetate affected lands using most modern technology available. Section 82-4-233, MCA: Operators must plant vegetation that will yield a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area and capable of self-regeneration. Section 82-4-336, MCA: Disturbed areas must be reclaimed to utility and stability comparable to areas adjacent. ARM 17.24.501: Provides general backfilling and grading requirements. ARM 17.24.519: Pertinent areas where excavation will occur will be regraded to minimize settlement. ARM 17.24.631: Disturbances to the prevailing hydrologic balance will be minimized. Changes in water quality and quantity, in the depth to groundwater and in the location of surface water drainage channels will be minimized, to the extent consistent with the selected response alternatives. Other pollution minimization devices must be used if appropriate, including stabilizing disturbed areas through land shaping, diverting runoff, planting quickly germinating and growing stands of temporary vegetation, mulching, and control of toxic-forming waste materials. ARM 17.24.633: Surface drainage from a disturbed area must be treated by the best technology currently available (BTCA). Treatment must continue until the area is stabilized. ARM 17.24.634: Disturbed drainages will be restored to the approximate pre-disturbance configuration, to the extent consistent with the selected response alternatives. ARM 17.24.638: Sediment control measures must be implemented during operations. ARM 17.24.639: Sets forth requirements for construction and maintenance of sedimentation ponds. ARM 17.24.640: Discharges from sedimentation ponds, permanent and temporary impoundments, must be controlled to reduce erosion and enlargement of stream channels, and to minimize disturbance of the hydrologic balance. ARM 17.24.643 through 17.24.646: Provisions for groundwater protection, groundwater recharge protection, and groundwater and surface water monitoring. ARM 17.24.701 and 702: Requirements for redistributing and stockpiling of soil for reclamation. Also outline practices to prevent compaction, slippage, erosion, and deterioration of biological properties of soil will be employed.	<u>Activities proposed in the this Work Plan may disturb land. The excavation will be backfilled with clean fill and regraded to slopes appropriate for its usage. Surface water controls will be implemented during construction to prevent runoff from contaminated soil. Final surfacing will use appropriate soil material. Seeding and planting of disturbed areas will be conducted within the first growing season after the soil has been replaced. A mulch cover will be used until an adequate cover is established. The disturbed areas will be revegetated consistent with these requirements. Surface water run-on and runoff measures will be implemented to prevent the spread of contamination into areas where it could degrade fish and wildlife habitat. Dust control measures will be used during excavation and backfilling areas.</u>

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
ARM 17.24.711 ARM 17.24.713 ARM 17.24.714 ARM 17.24.716 ARM 17.24.718 ARM 17.24.723 ARM 17.24.724 ARM 17.24.726 ARM 17.24.728 ARM 17.24.761	ARM 17.24.711: Requires that a diverse, effective and permanent vegetative cover of the same seasonal variety and utility as the vegetation native to the area of land to be affected must be established. This provision would not be well-suited in certain instances, for example, where there is dedicated development. ARM 17.24.713: Seeding and planting of disturbed areas must be conducted during the first appropriate period for favorable planting after final seedbed. ARM 17.24.714: Mulch or cover crop or both must be used until adequate permanent cover can be established. ARM 17.24.716: Establishes method of revegetation. ARM 17.24.718: Requires soil amendments, irrigation, management, fencing, or other measures, if necessary to establish a diverse and permanent vegetative cover. ARM 17.24.723: States that operators shall conduct approved periodic measurements of vegetation, soils, and water. ARM 17.24.724: Specifies that revegetation success must be measured by approved unmined reference areas. Required management for these reference areas is set forth. ARM 17.24.726: Sets the required methods for measuring productivity. ARM 17.24.728: Sets requirements for measurements of the composition of vegetation on reclaimed areas. ARM 17.24.761: This specifies fugitive dust control measures which will be employed during excavation and construction activities to minimize the emission of fugitive dust.	
Noxious Weeds (Applicable)		
ARM 4.5.201 through .204 Section 7-22-2109(2)(b) Section 7-22-2152 Section 7-22-2101(7)(a), MCA	§ 7-22-2101(7)(a), MCA defines "noxious weeds" as any exotic plant species established or that may be introduced in the state which may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities and that is designated: (i) as a statewide noxious weed by rule of the department; or (ii) as a district noxious weed by a board, following public notice of intent and a public hearing. Designated noxious weeds are listed in ARM 4.5.201 through 4.5.204 and must be managed consistent with weed management criteria developed under MCA § 7-22-2109(2)(b). Notification and plan must occur as set forth in § 7-22-2152, MCA, as amended.	Areas of significantly disturbed soil or vegetation that are created by vehicle and equipment movement on the Cinder Pile will be re-vegetated as necessary using a DEQ -pproved seed mixture and seed bed preparation techniques. Any noxious weeds that are established will be sprayed and controlled as provided for in the regular maintenance of the Cinder Pile.
OTHER LAWS		
These laws are laws which are independently applicable rather than ERCLs for the site.		
Section 85-2-101, MCA	<u>Surface Water and Groundwater Act</u> Section 85-2-101, MCA, declares that all waters within the state are the state's property, and may be appropriated for beneficial uses. The wise use of water resources is encouraged for the maximum benefit to the people and with minimum degradation of natural aquatic ecosystems.	Activities proposed in the this task work plan will not require any surface water or groundwater to be appropriated.
Parts 3 and 4 of Title 85, Chapter 2, MCA	<u>Groundwater and Surface Water Appropriation</u> Parts 3 and 4 of Title 85, Chapter 2, MCA, set out requirements for obtaining water rights and appropriating and utilizing water. All requirements of these parts are laws which must be complied with in any action using or affecting waters of the state.	Activities proposed in the this task work plan will not require any water rights to be obtained.
Section 85-2-507, MCA Section 85-2-506, MCA	<u>Controlled Ground Water Area</u> Pursuant to Section 85-2-507 MCA, the Department of Natural Resources and Conservation may grant either a permanent or a temporary controlled ground water area. The maximum allowable time for a temporary area is four years. ⁶ Pursuant to 85-2-506 MCA, designation of a controlled groundwater area may be proposed if (a) that ground water withdrawals are in excess of recharge to the aquifer or aquifers within the ground water area; (b) that excessive ground water withdrawals are very likely to occur in the near future because of consistent and significant increases in withdrawals from within the ground water area; (c) that significant disputes regarding priority of rights, amounts of ground water in use by appropriators, or priority of type of use are in progress within the ground water area; (d) that ground water levels or pressures in the area in question are declining or have declined excessively; (e) that excessive ground water withdrawals would cause contaminant migration; (f) that ground water withdrawals adversely affecting ground water quality within the ground water area are occurring or are likely to occur; or (g) that water quality within the ground water area is not suited for a specific beneficial use defined by 85-2-102(2)(a).	Activities proposed in the this task work plan will not require a controlled groundwater area.
29 CFR Part 1910	<u>Occupational Safety and Health Act</u> The federal Occupational Safety and Health Act regulations found at 29 CFR 1910 are applicable to worker protection during conduct of RI/FS or remedial activities.	Field activities associated with this task will be conducted in accordance with the Facility-Wide Health and Safety Plan (HASP) and the task-specific HASP addendum.

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
ARM 17.74.101 ARM 17.74.102	<u>Montana Occupational Health Act</u> ARM Section 17.74.101, along with the similar federal standard in 29 CFR 1910.95, addresses occupational noise. ARM Section 17.74.102, along with the similar federal standard in 29 CFR 1910.1000 addresses occupational air contaminants.	
Sections 50-71-201, 202, and 203, MCA	<u>Montana Safety Act</u> Sections 50-71-201, 202 and 203, MCA, state that every employer must provide and maintain a safe place of employment, provide and require use of safety devices and safeguards, and ensure that operations and processes are reasonably adequate to render the place of employment safe.	Water & Environmental Technologies has a comprehensive Injury and Illness Prevention Program designed to help ensure the health and safety of its employees and provide a safe and healthful work environment. In addition, Water & Environmental Technologies has a Corporate Health and Safety Program and Hazardous Communication Program.
Section 50-78-201, 202, and 204, MCA	<u>Employee and Community Hazardous Chemical Information Act</u> Sections 50-78-201, 202, and 204, MCA, state that each employer must post notice of employee rights, maintain at the work place a list of chemical names of each chemical in the work place, and indicate the work area where the chemical is stored or used. Employees must be informed of the chemicals at the work place and trained in the proper handling of the chemicals.	
40 CFR Part 262 and ARM 17.53.601-604	<u>Standards for Generators of Hazardous Waste</u> The RCRA regulations at 40 CFR Part 262 and ARM 17.53.601-604 establish standards that apply to generators of hazardous waste. These standards include requirements for obtaining an EPA identification number and maintaining certain records and filing certain reports. These standards are applicable for any waste which will transported off-site.	Hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed as outlined in Section 8.4 of the Facility-Wide SAP and comply with these requirements. BNSF has obtained a hazardous waste identification number for the Livingston railyard (EPA ID No. MTT310010087).
40 CFR Part 263 and ARM 17.53.701-708	<u>Standards for Transporters of Hazardous Waste</u> The RCRA regulations at 40 CFR Part 263 and ARM 17.53.701-708 establish standards that apply to transporters of hazardous waste. These standards include requirements for immediate action for hazardous waste discharges. These standards are applicable for any off-site transportation.	Hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed in accordance with Section 8.4 of the Facility-Wide SAP and comply with these requirements.
40 CFR 268 and ARM 17.53.1101-1102	<u>RCRA Land Disposal Restrictions</u> Since the wastes to be treated are listed and characteristic wastes, the RCRA Land Disposal Restrictions (LDRs) treatment levels set forth in 40 CFR Part 268 and ARM 17.53.1101-1102 are applicable requirements including the treatment levels for F001 and F002 listed wastes for the disposal of hazardous wastes generated at the site.	Hazardous IDW (i.e., soil, water) generated during implementation of this task will be managed in accordance with Section 8.4 of the Facility-Wide SAP and comply with these requirements.
49 CFR Chapter I, Subchapters B and C and ARM 23.5.101	<u>Oil Transportation</u> 49 CFR Chapter I, Subchapter B (Oil Transportation) and Subchapter C (Hazardous Materials) and ARM. 23.5.101 apply to transporters of oil and hazardous materials. These standards are applicable for any off-site transportation of oil meeting the quantity requirements set forth in Subchapter B or for the transportation of hazardous materials such as the transportation of asbestos-containing waste material.	Activities proposed in the this task work plan do not involve the use of oil and will not generate used oil.
Sections 75-2-501 et seq., MCA Sections 75-2-502(4) and -511, MCA, and ARM 17.74.302(3) ARM 17.74.314	<u>Montana Asbestos Control Act</u> The Montana Asbestos Control Act, Sections 75-2-501 et seq., MCA, and implementing rules establish standards and procedures for accreditation of asbestos-related occupations and control of the work performed by persons in asbestos-related occupations. A permit from DEQ is required before any person can conduct an asbestos project. The definition of "asbestos project" includes the encapsulation, enclosure, removal, transportation, or disposal of asbestos-containing waste. Section 75-2-502(4), MCA; ARM 17.74.302(3). In addition, a person who inspects, plans, designs, supervises, contracts for or works on an asbestos project must meet DEQ training and accreditation requirements. See also Section 75-2-511, MCA. ARM 17.74.314 states that no person may engage in an asbestos-type occupation unless accredited in that occupation or may employ or subcontract with nonaccredited individuals or contractors. No person may conduct an asbestos abatement project without a permit.	Activities proposed in the this task work plan do not involve asbestos work.

**ANALYSIS OF ENVIRONMENTAL REQUIREMENTS, CRITERIA, AND LIMITATIONS (ERCLS)^(a) FOR CINDER PILE REMEDIAL DESIGN STUDY
Burlington Northern Livingston Shop Complex**

Federal or State ERCL Citation	Description	Compliance
ARM 17.74.335 29 CFR 1926.58 40 CFR 763.120-121 40 CFR Part 61, Subpart M ARM 17.74.338 ARM 17.74.341	ARM 17.74.335 states that asbestos abatement projects require a DEQ permit. The permit conditions include but are not limited to: a. a requirement that all work performed be in accordance with 29 CFR 1926.58 (asbestos standards for the construction industry); and 40 CFR 763.120, 121 (requirements for asbestos abatement projects); b. a requirement that all asbestos be properly disposed in an approved asbestos disposal facility. "Approved asbestos disposal facility" is defined at ARM 17.54.302(1) as a A9properly operated and licensed class II landfill as described in ARM 17.50.504; c. a requirement that asbestos be disposed in accordance with 40 CFR Part 61, Subpart M (National Emission Standard for Asbestos). See discussion above on National Emission Standard for Asbestos. ARM 17.74.338 requires an accredited asbestos abatement supervisor be physically present at all times at the work-site where a permitted asbestos abatement project is being performed and must be accessible to all workers. On-site air monitoring must be conducted by an accredited asbestos contractor/supervisor, an engineer or industrial hygienist. ARM 17.74.341 requires records of each asbestos abatement project be retained for a minimum of 30 years and must be made available to DEQ at any reasonable time. This section provides a noninclusive list of the records to be retained.	
40 CFR Part 92	<u>Locomotive Emissions</u> 40 CFR Part 92 establishes control of air pollution from locomotives and locomotive engines.	Activities proposed in the this task work plan do not involve the use of locomotives.

Notes:

(a) These ERCLs were developed by the Montana Department of Environmental Quality and were included in Appendix A of the *Record of Decision* (ROD) (DEQ 2001).

¹ Montana Maximum Contaminant Levels:

Pursuant to the Public Water Safety Act, 75-6-101 et. seq., MCA and ARM 17.38.204, the MCLs specified in 40 CFR Part 141 (Primary Drinking Water Standards) are incorporated.

² Montana Department of Environmental Quality, Planning, Prevention and Assistance Division, Circular WQB-7, Montana Numeric Water Quality Standards (September, 1999).

³ For vinyl chloride, the WQB-7 standard is 0.15 µg/L.

⁴ Each of the ambient air quality standards includes in its terms specific requirements and methodologies for monitoring and determining levels. Such requirements are also applicable requirements. In addition, ARM 17.8.204 and 17.8.206, Ambient Air Monitoring; Methods and Data, respectively (Applicable), require that all ambient air monitoring, sampling and data collection, recording, analysis and transmittal shall be in compliance with the Montana Quality Assurance Manual except when more stringent requirements are determined by DEQ to be necessary.

⁵ ARM 17.50.530(1)(b) allows the department to approve an alternative final cover desian if it achieves the reduction in infiltration and protection from erosion to a level at least as equivalent as the stated criteria.

⁶ If a temporary controlled around water area is aranted, the statute requires DNRC to commence studies to determine the designation or modification of a permanent controlled around water area.